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# BLUE BOOK

1945

SOAPS
INSECTICIDES
DISINFECTANTS
CHEMICAL SPECIALTIES
SANITARY SUPPLIES
POLISHES
CLEANERS

Issued Annually by the Publishers of

SOAP AND SANITARY CHEMICALS

NEW YORK



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LAVENDER SYNTHETIC METHYL ACETOPHENONE METHYL ANTHRANILATE METHYL RHODIONE (Methyl Ionone) MUGOL (Dimethyl Acetal of Hydroxycitronellal) MUSK AMBRETTE MUSK KETONE MUSK XYLOL NEROLIN PARACRESOL METHYL ETHER PHENYL ACETALDEHYDE PHENYL PROPYL ALCOHOL RHODINOL. RHODIONE (Ionone) SALICYLALDEHYDE TERPINEOL TERPINOLENE TERPINYL ACETATE TERPINYL PROPIONATE VIOLET KETONE YARA YARA

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E. I. du Pont de Nemours & Co. (Inc.)
Organic Chemicals Department
Aromatica Section
Wilmington 98, Delaware

Branch Offices: Boston, Charlotte, Chicago, New York, Philadelphia, Providence, San Francisco.



# BLUE BOOK 1945

AN ANNUAL BUYERS GUIDE, DIRECTORY AND REFERENCE VOLUME FOR MANUFACTURERS AND DISTRIBUTORS OF SOAPS, INSECTICIDES, DISINFECTANTS, POLISHES, CLEANERS AND ALLIED CHEMICAL SPECIALTIES

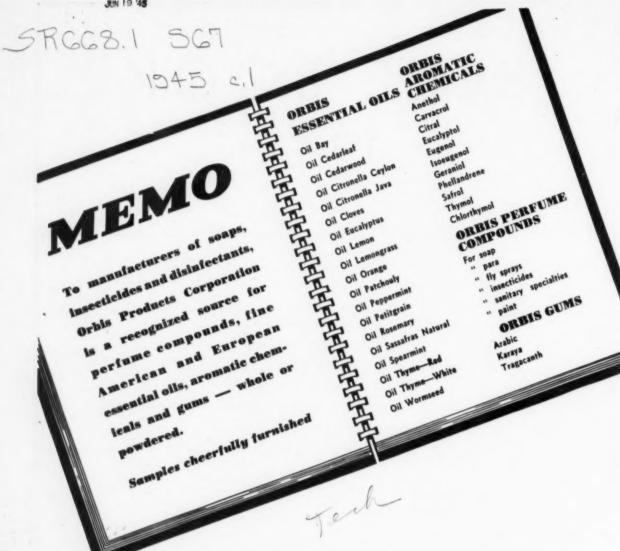
#### Seventeenth Edition

ISSUED ANNUALLY BY

MacNair-Dorland Company

254 West 31st Street

New York, N. Y.



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Waxes Stearic Acid **Essential Oils** Zinc Oxide French

Cosmetic Raw Material Oleo Resins Perfume Bases Olive Oil

Fruit Flavors Food Colors Quince Seed Irish Moss

# Foreword

THE BLUE BOOK is intended to serve not only as a source of dependable buying information for manufacturers, processors, and dis-tributors of soaps and sanitary chemicals, but also as a convenient reference volume wherein may be found the answers to many questions that are commonly asked in and about the soap and sanitary chemical industry. Thus each issue of the BLUE BOOK carries the latest text of the various government orders affecting the industry, a resume of government specifications on soaps and sanitary chemicals, an index to all articles in issues of SOAP & SANITARY CHEMICALS over the past five years, reference material on testing methods, names of officers of associations in the industry, source material on soap sales, oil and fat consumption, glycerine recovery figures, etc.

Keep your current copy of the BLUE BOOK handy for ready reference! It contains many answers to questions that you will need to answer during the coming year.

As to the buyers' guide listings, we try as far as possible to make listings accurate and to confine them to first-hand suppliers exclusively. Every supplier on our lists has received a questionnaire asking him to check the items of which he is a producer or other first-hand. No recognized supplier has been deliberately overlooked or his listings omitted. It is inevitable, of course, that some mistakes have occurred, and if you find that your listings are incomplete, advise us at once so that this can be corrected.

A special explanatory note may be necessary on the listings of suppliers of finished products,—bulk and private brand soaps, and sanitary products. The BLUE BOOK listings are not intended to be complete lists of all manufacturers of such finished products, but are planned to be limited only to firms specializing in bulk and private brand sales. Wherever possible we have eliminated from the listings the names of manufacturers whose sole concern is the sale of such products direct to users.

THE PUBLISHERS.

March 15, 1945.



#### McCormick Insecticides

The products marked with an asterisk (\*) are immediately available as this is being published. All others are offered subject to availability of supplies, and to Government restrictions on sales of pyrethrum, rotenone and other essential ingredients.

\*BEE BRAND INSECT SPRAY: An excellent household spray, highly effective against flies, mosquitoes and other household insects.

**BEE BRAND INSECT POWDER:** Pure, finely ground pyrethrum powder for household use, or for mixing horticultural dusts.

**BEE BRAND INSECTICIDAL SHAMPOO:** Kills fleas and lice on dogs and cats—head lice and crab lice on humans.

BEE BRAND FLEA POWDER: Active derris derivatives with a clay base, for control of fleas and lice on animals.

BEE BRAND ANT POWDER: A specially compounded derris powder for control of garden ants and certain other insects.

\* BEE BRAND ROACH POWDER: Highly effective for household and institutional use. To be used only as directed on package.

**BEE BRAND WARBLE FLY TREATMENT:** A specially compounded derris powder for treatment of Warble or Heel Flies on cattle.

- \* BEE BRAND DISINFECTANT: A highly efficient disinfectant, deodorant and fungicide. Phenol coefficient—8 F. D. A. method.
- \* RED ARROW GARDEN SPRAY: A highly concentrated garden spray containing Rotenone and a special soap.
- \* RED ARROW GARDEN DUST: A highly effective dust containing Rotenone and 30% wettable sulphur.
- ★ BLACK ARROW 5000: A compound pyrethrum dust for use in greenhouses on vegetables, small fruits, etc.

"SPECIAL" RED ARROW SPRAY: An extra-high-powered pyrethrum spray for Japanese Beetles, Leaf Tyers and Leaf Rollers.

McCormick & Co., Inc.
BALTIMORE 2. MARYLAND

# Buyers' Guide Section

LISTING SOURCES OF SUPPLY FOR RAW MATERIALS, MACHINERY AND EQUIP-MENT BOUGHT BY MANUFACTURERS OF SOAPS AND SANITARY CHEMICALS.

Included in this section are the names of manufacturers of soaps and sanitary chemicals who sell private brand and bulk products to jobbers and distributors. It is not intended to list concerns who sell direct to consumers.



has been synonymous with the production of the highest quality group of synthetic and aromatic chemicals obtainable. Today, as then, this reputation continues unmatched. 1 Throughout these years the Chuit, Naef organization has expanded its products to the point where they now rank as the most complete line of perfume raw materials available to the toilet goods, perfume extract and soap fields. + + As sole United States agents, let us convince you of the remarkable adaptability of our products to your line - and our ability to deliver!



#### ABRASIVES AND FILLERS (Pumice, Silica, Feldspar, Bentonite, Clays, etc.)

Bentonite, Clays, etc.)

American Colloid Co., 363 W. Superior St., Chicago Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa. California Industrial Minerals Co., Friant, Calif. Chas. B. Chrystal Co., 53 Park Pl., N. Y. Dicalite Co., 120 Wall St., N. Y.

A. C. Drury & Co., 219 E. North Water St., Chicago K. F. Griffiths Co.. 110 E. 42nd St., N. Y.

Goris & Co., 8124 S. Hoyne Ave., Chicago Hammill & Gillespie, 225 Broadway, N. Y.

Johns-Manville Corp., 22 E. 40th St., N. Y.

Monsanto Chem. Co., 1700 S. 2nd St., St. Louis Nature Minerals Co., 108 W. 6th St., Los Angeles Philadelphia Quartz Co., 125 S. 3rd St., Phila.

Pumice Corp. of America, Grants, N. M.

Jas. H. Rhodes & Co., 157 W. Hubbard St., Chicago Wm. R. Rogers, 44 Woodman St., Lynn, Mass.

L. A. Salomon & Bro., 216 Pearl St., N. Y.

F. E. Schundler & Co., Inc., 524 Railroad St., Joliet, Ill.

A. E. Starkie, 5461 W. Division St., Chicago Tamms Silica Co., 229 N. La Salle St., Chicago Whittaker Clark & Daniels, 260 W. B'way, N. Y.

Witco Chemical Co., 295 Madison Ave., N. Y.

#### ACETONE (see also Dealers)

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y. Cliffs-Dow Chemical Co., Marquette, Mich. Commercial Solvents Corp., Terre Haute, Ind. E. I. Du Pont de Nemours, Wilmington, Del. Wm. S. Gray & Co., 342 Madison Ave., N. Y. R. W. Greeff & Co., 10 Rockefeller Plaza, N. Y. Monsanto Chem. Co., St. Louis, 4 Shell Union Oil Corp., 100 Bush St., San Francisco U. S. Industrial Chem., Inc., 60 E. 42nd St., N. Y.

#### ACIDS (Sulfuric, Muriatic, Nitric, Acetic, Etc.)

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Atlas Powder Co., Wilmington, Del.
Blockson Chem. Co., Joliet, Ill.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Hercules Powder Co., Wilmington, Del.
Hooker Electrochemical Co., Niagara Falls, N. Y.
(Muriatic)

Ingis Spacidon & Co. 117 Liberty St. N. Y. (Muriatic)
Innis, Speiden & Co., 117 Liberty St., N. Y.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Oronite Chem. Co., Russ Bldg., San Francisco
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Victor Chemical Wks., 141 W. Jackson Blvd., Chicago
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

ACTIVATED CARBONS, (see Bleaching Earths, Decolorizing Carbons)

#### ADHESIVES

Arabol Mfg. Co., 110 E. 42nd St., N. Y.
Armour Glue Wks. 1355 W. 31st St., Chicago
Bakelite Corp., 30 E. 42 St., N. Y.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Casein Co. of America, Bainbridge, N. Y.
Dennison Mfg. Co., Framingham, Mass.
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
E. I. Du Pont de Nemours & Co., Wilmington, Del.
W. H. Gage Glue Co., 19 S. Main St., St. Louis
General Chemical Co., 40 Rector St., N. Y.
Hercules Powder Co, Wilmington, Del.
Arnold Hoffman Co., Providence, R. I.
Mechling Bros. Chemical Co., Camden, N. J.
National Oil Products Co., Harrison, N. J.

Philadelphia Quartz Co., 125 S. 3rd St., Philadelphia Rohm & Haas Co., 222 W. Washington Sq., Phila. Sanford Mfg. Co., W. Congless & Peoria St., Chicago A. E. Staley Mfg. Co., Decatur, Ill. Stein, Hall & Co., 285 Madison Ave., N. Y. Swift & Co., Chicago

#### AEROSOL INSECTICIDES (Containers and Dispensing

Bridgeport Brass Co., Bridgeport 2, Conn. Sparklet Devices, Inc., 272 Badger Ave., Newark 8, N. J. Westinghouse Elec. & Mfg. Co., Springfield, Mass.

#### AGITATORS

Alsop Engineering Corp., Milldale, Conn.
Beach-Russ Co., 50 Church St., N. Y.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
Eastern Engineering Corp., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Foster Pump Works, 50 Washington St., Brooklyn
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn
J. M. Lehmann Co., Lyndhurst, N. J.
Littleford Bros., 443 E. Pearl St., Cincinnati
Mixing Equipment Co., Inc., 1067 Garson Ave.
Rochester, N. Y.
Newman Tallow & Soap Machy. Co., 1051 W. 35th St.,
Chicago, Ill. (Used)
Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy. Co., York, Pa.
Scientific Filter Co., 1 Franklin Sq., N. Y.
Ernest Scott & Co., P. O. Box 82, Fall River, Mass.
Sowers Mfg. Co., 1296 Niagara St., Buffalo
Sprout Waldron & Co., Muncy, Pa.
Stein Equipment Corp., 426 Broome St., N. Y. C. (Used)
Struthers-Wells Titusville Corp., Warren, Pa.

#### AGRICULTURAL INSECTICIDES

AGRICULTURAL INSECTICIDES

Agicide Laboratories, 1717 Taylor Ave., Racine, Wis. Aluminum Co. of America, Gulf Bldg., Pittsburgh American Agricultural Chem. Co., 50 Church St., N. Y. American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.

An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif. Ansbacher-Siegle Corp., Rosebank, S. I. Bowker Chemical Co., 50 Church St., N. Y.
California Spray Chemical Corp., Richmond, Calif. Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Canid Co., 4250 N. Pulaski Ave., Chicago Chipman Chemical Co., Bound Brook, N. J.
Dodge & Olcott Co., 180 Varick St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Filtrol Corp., 634 S. Spring St., Los Angeles
Fuld Bros., Baltimore
General Chem. Co., 40 Rector St., N. Y.
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Koppers Co., White Tar Div., Kearny, N. J.
McLaughlin, Gormley King Co., 1715—5th St., S. E.
Minneapolis
S. B. Penick & Co., 50 Church St., N. Y. Minneapolis
S. B. Penick & Co., 50 Church St., N. Y.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Richards Sales Corp., Warren & Morris Sts., Jersey
City, N. J.
Rohm & Haas Co., 222 W. Washington Sq.. Phila.
Schaeffer Bros. & Powell Mfg. Co., 102 Barton St., Schaeffer Bros. & Powell Mfg. Co., 102 Barton St., St. Louis, Mo. Sherwin-Williams Co., 292 Madison Ave., N. Y. L. Sonneborn Sons, 88 Lex. Ave., N. Y. Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago Standard Oil Co. (Calif.), 225 Bush St., San Francisco Stauffer Chem. Co., 420 Lexington Ave., N. Y. Thompson-Hayward Chem. Co., Kansas City, Mo. Tobacco By-Products & Chem. Corp., Louisville, Ky. Velsicol Corp., 120 E. Pearson St., Chicago Whitmire Research Corp., 339 S. Vandeventer, St. Louis Woburn Chemical Corp., Harrison, N. J. York Chem. Co., 424 W. 18th St., N. Y.

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For Household Sprays

Sprays based on AR-50 Special meet the exacting specifications for a high quality AA household insecticide. They are free from unpleasant residual odor . . . have greatly increased effectiveness against a wide variety of crawling and flying insects . . . are harmless to warm-blooded animals . . . and estimated on the basis of unit kill per gallon of finished spray—AR-50 Special gives highest dollar value of any leading toxicant.

VELSICOL Corporation

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AR-60

FOR

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Powerful repellancy, longer lasting repellancy plus high Knock-Down and Kill—give VELSICOL AR-60 top place in the producing of superior livestock sprays. First choice of discerning manufacturers who require efficient, safe and economical sprays for this important market, AR-60 merits your investigation.

#### **AGRICULTURAL INSECTICIDES**

VELSICOL AR-60 is unique in combining many valuable properties essential to the efficient performance of agricultural dusts and sprays. Chief among these, we cite the following: It is a superior solvent for derris, cube, and DDT; it acts synergistically with rotenone, DDT, nicotine, and the thiocyanates. As a toxicant it offers control of a wide range of agricultural pests. AR-60 is non-volatile, possesses good wetting and spreading characteristics, and is outstandingly economical.

We invite inquiries concerning special problems. Write for samples and complete information.





#### AGRICULTURAL INSECTICIDE SPREADERS

Adminum Ore. Co., Gulf Bldg., Pittsburgh
American Colloid Co., 363 W. Superior St., Chicago
American Cyanamid & Chem. Corp.,
30 Rockefeller Plaza, N. Y.
Ansbacher-Siegle Corp., Rosebank, S. I.
Atlantic Refining Co., 260 South Broad St., Phila.
Atlas Powder Co., Wilmington, Del.
California Industrial Minerals Co., Friant, Calif.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Dicalite Co., 120 Wall St., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Kay-Fries Chemicals, Inc., 180 Madison Ave., N. Y.
National Oil Products Co., Harrison, N. J.
S. B. Penick & Co., 50 Church St., N. Y.
Richards Sales Corp., Jersey City, N. J.
Rohm & Haas Co., 222 W. Washington Sq., Phila.
F. E. Schundler & Co., 508 Railroad St., Joliet, Ill.
R. T. Vanderbilt Co., 230 Park Ave., N. Y.

#### ALCOHOL (Ethyl and Denatured)

(see also Dealers)

American Coml. Alcohol Corp., 405 Lexington Ave., N. Y. Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y. Commerce Petroleum Co., 2923 S. Lock Ave., Chicago Commercial Solvents Corp., Terre Haute, Ind. E. I. Du Pont de Nemours & Co., Wilmington, Del. Hercules Powder Co., Wilmington, Del. Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y. Monsanto Chem. Co., 1700 S. 2nd St., St. Louis Pennsylvania Sugar Co., 139 S. 3rd St., Phila. Publicker Commercial Alcohol Co., 260 E. Broad St., Phila. U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y.

#### ALCOHOL (Methyl or Wood) (see also Methanol,

(see also Dealers)

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y. Cliffs-Dow Chemical Co., Marquette, Mich.
E. W. Colledge, General Sales Agent, Inc., P. O. Box 389, Jacksonville, Fla.
Commercial Solvents Corp., Terre Haute, Ind.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Publicker Commercial Alcohol Co., 260 S. Broad St.,
Philadelphia Philadelphia U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y. Wood Products Co., Buffalo, N. Y.

#### ALCOHOL, ISO-PROPYL

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y. E. I. du Pont de Nemours & Co., Wilmington, Del. Shell Union Oil Corp., 100 Bush St., San Francisco Standard Alcohol Co., 26 Bway., N. Y. U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y.

ALKALIES (see Caustic Soda, Soda Ash, Caustic Potash, etc.)

#### ALUMINUM CHIPS (for Drain Solvent)

Aluminum Co. of Amer., Gulf Bldg., Pittsburgh Belmont Smelting & Ref. Co., 318 Belmont Ave., Bklyn., N. Y. Reynolds Metals Co., 19 Rector St., N. Y.

#### ALUMINUM STEARATE (see Stearates)

#### ALTIMS

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.

Armour Ammonia Wks., 1355 W. 31st St., Chicago E. I. du Pont de Nemours & Co., Wilmington, Del. General Chemical Co., 40 Rector St., N. Y. Harshaw Chemical Co., 1945 E. 97th St., Cleveland Hercules Powder Co., Wilmington, Del. Innis, Speiden & Co., 117 Liberty St., N. Y. Merck & Co., Rahway, N. J. Monsanto Chem. Co., 1700 S. 2nd St., St. Louis Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila. (Ammonia) (Ammonia)
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
Sergeant Chem. Co., 350 5th Ave., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### AMALGAMATORS (see Soap Machinery)

#### AMINOHYDROXY COMPOUNDS

Commercial Solvents Corp., Terre Haute, Ind.

AMMONIA, HOUSEHOLD (see Household Ammonia)

#### AMMONIA WATER

(see also Dealers)

American Cyanamid & Chem. Corp.,
30 Rockefeller Plaza, N. Y.
Barrett Co., 40 Rector St., N. Y.
Cole Laboratories, 22-14—37th Ave.,
Long Island City, N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Eastern Industries, Inc., Ridgefield, N. J.
General Chemical Co., 40 Rector St., N. Y.
Mallinckrodt Chem. Wks., St. Louis
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Merck & Co., Rahway, N. J.
Monsanto Chem. Co., 1700 S. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Shell Union Oil Corp., 100 Bush St., San Francisco
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

#### AMMONIUM BI-FLUORIDE (see Fluorides)

#### AMMONIUM CARBONATE

(see also Dealers)

American-British Chm. Supplies, Inc.,
180 Madison Ave., N. Y.
American Agricultural Chem. Co., 50 Church St., N. Y.
American Cyanamid & Chem. Corp.,
30 Rockefeller Plaza, N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

#### AMMONIUM CHLORIDE

American Cyanamid & Chem. Co.,
30 Rockefeller Plaza, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Hercules Powder Co., Wilmington, Del.
Merck & Co., Rahway, N. J.
Penn. Salt Mfg. Co., Widener Bldg., Phila.
Sergeant Chem. Co., 350 5th Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

#### AMYL CINNAMIC ALDEHYDE (see Aromatic Chemicals)

AMYL SALICYLATE (see Aromatic Chemicals)

ANISE OIL (see Essential Oils)



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#### ANT POISONS

American Cyanamid & Chem. Corp.,
30 Rockefeller Plaza, N. Y.
American Fluoride Corp., 151 W. 19th St., N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Associated Chemista, Inc., 1906 N. Halsted Ave., Chicago
Barton Chemical Co., 3907 S. Langley Ave., Chicago
Buckeye Chem. & Specialty Co., 131 E. 23rd St., N. Y.
California Spray-Chemical Corp., Richmond, Calif.
Geo. H. Conn Co., Freeport, Ill.
Chemical Supply Co., 220 Plymouth Bldg., Cleveland
Delta Chem. Co., 4 Payson Ave., N. Y.
Exterminating Materials Co., 555 W. 22nd St., N. Y.
Foote Mineral Co., 1609 Summer St., Phila.
Fuld Bros., 702 S. Wolfe St., Baltimore
Hysan Products Co., 58 E. Cullerton St., Chicago
Maywood, Ill.
John Opitz, Inc., 50-14 39th St., Long Island City, N. Y.
Pfaltz & Bauer, Inc., Empire State Bldg. N. Y.
Ore & Chemical Corp., 80 Broad St., N. Y.
Soilicide Labs., 8 Laurel Pl., Upper Montclair, N. J.
Sennewald Drug Co., Inc., 2723 Chouteau Ave., St. Louis
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chem. Co., 573 W. 131st St., N. Y.
U. S. Sanitary Spec. Corp., 435 S Western Ave., Chicago
W-B Chemical Co., Mt. Vernon, N. Y.
York Chemical Co., 424 W. 18th St., N. Y.

#### APPLICATORS (for Floor Wax)

American Standard Mfg Co., 2509 S. Greene St., Chicago Armstrong Cork Co., Lancaster, Pa. Churchill Mfg. Co., Galesburg, Ill. Continental Car-Na-Var Corp., Brazil, Ind. Empire Brush Wks., Port Chester, N. Y. Fuld Bros., 702 S. Wolfe St., Baltimore H. Hertzberg & Son, Inc., 2300 Fifth Ave., N. Y. Higley Chem. Co., Dubuque, Iowa R. M. Hollingshead Corp., Camden, N. J. Hysan Products Co., 58 E. Cullerton St., Chicago E. B. Moore & Co., 613 N. Parkside Ave., Chicago

Palmer Prods., Inc., Waukesha, Wis.
Pioneer Mfg. Co., 3053 E. 87th St., Cleveland
Shane & Hays, Inc., 5300—21st St., Brooklyn, N. Y.
H. F. Staples Co., Medford, Mass.
Uncle Sam Chem. Co., 573 W. 131st St., N. Y.

#### AROMATIC CHEMICALS (for Perfuming)

AROMATIC CHEMICALS (for Perfuming)

American-British Chem. Supplies, Inc.,
180 Madison Ave., N. Y.
van Ameringen-Haebler, Inc., 315 Fourth Ave., N. Y.
Aromatic Products, Inc., 136 E. 30th St., N. Y.
Bush Aromatics, Inc., 136 Liberty St., N. Y.
Centflor Mfg. Co., 6 Varick St., N. Y.
Ph. Chaleyer, Inc., 160 E. 56th St., N. Y.
Antoine Chiris Co., Inc., 115 E. 23rd St., N. Y.
Compagnie Duval, Division S. B. Penick & Co., 56
Church St., N. Y.
Compagnie Parento, Inc., Croton-on-Hudson, N. Y.
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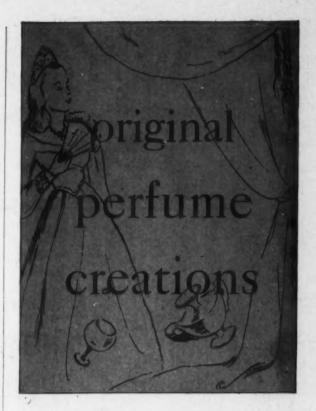
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Mathieson Alkali Works, 60 E. 42nd St., N. Y.

Niagara Alkali Co., 60 E. 42nd St., N. Y.

Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.

Pittsburgh Plate Glass Co., Columbia Chemical Div.,

Grant Bldg., Pittsburgh

# Hooker Quality Chemicals for Soaps

Among the Hooker chemicals used in the soaps and sanitary chemicals industries are solvents, deodorizers, chlorinating agents, antiseptics and chemical intermediates. A few of these are listed below with their principal uses suggested. More complete information will be furnished on any of interest to you. Send also for the Hooker General Products List which describes many more Hooker chemicals.

PRODUCT (Chemical Formula Molecular Weight)	DESCRIPTION All Specific Gravities at 15.5°/15.5°C.	SUGGESTED USES
Benzoate of Soda—USP CeHsCOONa; 144.0	White, odorless, crystal- line solid.	Antiseptic in pharma- ceutical and medicinal preparations, in tooth pastes and powders.
Bensoie Acid C <sub>6</sub> H <sub>6</sub> COOH; 188.1	White, crystalline material.	Ingredient of cosmetic creams, lotions and other preparations; Manufacture perfumes and pharmaceuticals.
Benzoyl Chloride (Benzenecarbonyl Chloride) CaHa COCl; 140.5	Water clear liquid sol- uble in ether; reacts with alcohol and water. Sp. Gr. 1.219±.003. Boiling Point 198°C. Freezing Point, Min. —0.9°C.	Highly active source of benzoyl group. Manu- facture of benzophen- one, benzyl benzoates, synthetic perfumes, dyes and pharmsceuti- cals.
Cyclonexanol (Hexahydro Phenol) C <sub>6</sub> H <sub>11</sub> OH; 100.1	Clear, colorless liquid with pleasant aromatic odor. Sp. Gr. 0.962. Boiling Range: High Grade, 158° to 160°C, Tech. Grade, 155° to 165°C.	In manufacture of dis- infectants, germicides and insecticides, per- fumes in soaps, solvent.
Methyl Benzoate (Niobe Oil) C <sub>6</sub> H <sub>5</sub> COOCH <sub>2</sub> ; 136.1	Clear, colorless liquid with odor resembling oil of wintergreen. Sp. Gr. 1.0930. Boiling Range 2°C Max. in- cluding 199°C.	Deodorizing material for soaps and in manu- facture of perfumes.
Methyl Cyclohexanol (HexahydroCresol) CH3CeH10OH; 114.1	Slightly viscous atraw colored, neutral liquid which becomes glasslike when cooled below room temperatures. A mixture of ortho-, meta-, and para-isomers. Sp. Gr. 0.924 ± .003. Boiling Range 155° to 180° C.	Perfume in soaps and to incorporate solvents and phenolic insecti- cides; solvent.
Orthodichlor- benzene (1:2 Dichlorben- zene) CaH <sub>4</sub> Cl <sub>2</sub> ; 147	Clear, colorless liquid. Sp. Gr. 1.310±.005. Boiling range 10° C Max. including 180° C.	Solvent for natural and synthetic gums, resins, tars, grease, oil, fats. Manufacture of dye in- termediates, synthetic organics.
Sulfur Dichloride SCl <sub>2</sub> ; 103	Dark brown or reddish liquid. Sp. Gr. 1.638 ± .005. Decomposes above 40° C. 66% Min. Cl <sub>2</sub> content.	Chlorinating agent, in manufacture of organic acid anhydrides and in organic synthesis.
Sulfur Monochloride S <sub>2</sub> Cl <sub>2</sub> ; 135	Yellow to slightly red- dish liquid. Sp. Gr. 1.690 ± .005. B. P. 138° C. 50% Min. Cls con- tent.	Manufacture of insec- ticides, linseed oil sub- stitutes, dye interme- diates, pharmaceuticals, organic acid chlorides.

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Sergeant Chem. Co., 350 5th Ave., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

BLOCK HOLDERS (see Holders, Deodorizing Block)

BLOWERS for POWDER INSECTICIDES (see Bellows)

BLOWERS, ELECTRIC (see Sprayers, Electric)

BLUING (see Laundry Blue)

#### BOILER COMPOUNDS

American Colloid Corp., 15 E. 26th St., N. Y.
Ampion Corp., 47-02 5th St., Long Island City, N. Y.
Baum's Castorine Co., Rome, N. Y.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago Sanitary Prods. Co., 3100 S. Throop St.,
Chicago
Churchill Mfg. Co., Galesburg, Ill.
Delta Chem. Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Hercules Chem. Co., 332 Canal St., N. Y.
Higley Chem. Co., Dubuque, Iowa
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods Co., 58 E. Cullerton St., Chicago
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Midland Labs., Dubuque, Iowa
Palmer Products Co., Waukesha, Wisc.
Peck's Products Co., St. Louis
Permutit Co., 330 W. 42nd St., N. Y.
Reilly Tar & Chemical Corp., Indianapolis, Ind.
Richards Sales Corp., Jersey City, N. J.
Theo. B. Robertson Prods. Co., 700 Division St., Chicago
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
John Sunshine Chem. Co., 604 W. Lake St., Chicago
Trojan Products & Mfg. Co., 3107 S. Wabash Ave.,
Chicago
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### BOIS de ROSE OIL (see Essential Oils)

#### BORAX

American Cyanamid & Chem. Corp., 30 Rockefeller American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Potash & Chem. Corp., 233 Broadway, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del. General Chemical Co., 40 Rector St., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland Innis, Speiden & Co., 117 Liberty St., N. Y.
Pacific Coast Borax Co., 51 Madison Ave., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Witco Chemical Co., 295 Madison Ave., N. Y.

#### BOTTLES

American Bottle Co., Toledo, O.
Armstrong Cork Co., Lancaster, Pa.
Anchor Hocking Glass Corp., Lancaster, Ohio
Capstan Glass Co., Connelsville, Pa.
Foster-Forbes Glass Co., Marion, Ind.
Graham Glass Co., Evansville, Ind.
Hazel Atlas Glass Co., Wheeling, W. Va.
Kimble Glass Co., Vineland, N. J.
Maryland Glass Corp., Baltimore, Md.
Millville Bottling Wks., Millville, N. J.
Owens Illinois Glass Co., Toledo, O.

F. E. Reed Gass Co., 860 Maple St., Rochester, N. Y. Root Glass Co., Terre Haute, Ind. Ruth Glass Co., Conshohocken, Pa. Tygart Valley Glass Co., Washington, Pa. T. C. Wheaton Co., Millville, N. J.

BOTTLE FILLING MACHINERY (see Filling Machinery, Bottles)

BOTTLE WASHERS (see Washing Machinery, Bottle)

BOX LINERS (see Bag Liners)

#### BOXES (Corrugated and/or Fibre)

Brooklyn Fibre Syndicate, Decatur St. & Irving Ave., Brooklyn
Cambridge Paper Box Co., 196 Broadway,
Cambridge, Mass.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America,
111 W. Washington St., Chicago
Robert Gair Co., 155 E. 44th St., N. Y.
Gardner-Richardson Co., Middletown, O.
Hinde & Dauch Paper Co., 222 Decatur St., Sandusky, O.
F. J. Kress Box Co., 2390 Liberty Ave., Pittsburgh
Owens-Illinois Glass Co., Toledo, O.
River Raisin Paper Co., Monroe, Mich. Brooklyn Fibre Syndicate, Decatur St. &

#### BOXES (Fancy Paper)

Alderman-Fairchild Co., 367 Orchard St., Rochester, N. Y. Baxter Paper Co., Brunswick, Me. F. N. Burt Co., Ltd., 540 Seneca St., Buffalo, N. Y. C. J. Fox Co., 236 Abron St., Providence, R. I. Foxon Paper Co., 230 West Park St., Providence, R. I. Robert Gair Co., 155 E. 44th St., N. Y. Gardner-Richardson Co., Middletown, O. R. R. Heywood, Inc., 26th St. & 9th Ave., N. Y. R. J. Kittredge Co., 812 W. Superior St., Chicago Pictorial Package Co., Aurora, Ill. Piqua Paper Box Co., Piqua, O. Potomac Lithograph Mfg. Co., Washington, D. C. W. C. Ritchie & Co., 8801 S. Baltimore Ave., Chicago Robert Paper Box Co., Montville, Conn. Geo. Schmitt & Co., Grand & Florence Sts., Brooklyn Strobridge Lithographing Co., Norwood Station, Cincinnati Cincinnati U. S. Printing & Lithographing Co.,
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Universal Folding Box Co., Monroe & 13th Sts., Hoboken, N. J. Carl Voss Corp., Hoboken, N. J.

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Irving R. Boody Co., 99 Well St., N. Y.
Davidson Commission Co.. 327 S. La Salle St., Chicago
John W. Hall, 327 S. La Salle St., Chicago
Otto A. C. Hagen Co., Public Ledger Bldg., Phila.
Hentz & Co., 60 Beaver St. N. Y.
Arnold Hoffman Co., Providence, R. I.
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Alabama Broom & Mattress Co., Huntsville, Ala.
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Chattanooga Broom & Mop Co., Chattanooga, Tenn.
Detroit Quality Brush Mfg. Co.,
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Eagle Woodenware Co., Hamilton, O.
Flour City Brush Co., Minneapolis
Illinois Brush Mfg. Co., 3316 Ogden Ave., Chicago
Kendallville Brush & Broom Co., Kendallville, Ind.
Tate Mfg. Co., 67 Sudbury St., Boston, Mass.
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Flour City Brush Co., 301 Fifth Ave., So., Minneapolis
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W. E. Kautenberg Co., P. O. Box 255, Freeport, Ill.
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National Brush Co., Aurora, Ill.
New Jersey Brush Mfg. Co., Newton, N. J.
Opie Brush Co., Kansas City, Mo.
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Pacific Coast Brush Co., Los Angeles
Palmer Prods., Inc., Waukesha, Wisc.
Pioneer Mfg. Co., Cleveland, O.
Sanitax Brush & Prods. Co., 230 E. Ohio St., Chicago
Silver-Chamberlin Co., Clayton, N. J.
Sullivan Brush Co., Terre Haute, Ind.
Tate Mfg. Co., 67 Sudbury St., Boston, Mass.

#### CAJUPUT OIL (see Essential Oils)

#### CALCIUM HYPOCHLORITE

Hooker Electrochemical Co., Niagara Falls, N. Y.
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Penn. Salt Mfg. Co., Widener Bldg., Phila.
Pittsburgh Plate Glass Co., Columbia Chemical Div.,
Grant Bldg., Pittsburgh
Jos. Turner & Co., Ridgefield, N. J.
Wyandotte Chemicals Corp., Michigan Alkali Div.,
Wyandotte, Mich.

#### CALCIUM STEARATE (see Stearates)

CAMPHOR OIL, SASSAFRASSY (see Essential Oils)

CAMPHOR OIL, WHITE (see Essential Oils)

CANN FILLING MACHINERY (see Filling Machinery,

CANDELILLA WAX (see Waxes)

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#### CAN SPOUTS AND NOZZLES

Anchor Hocking Glass Corp., Lancaster, Ohio Aridor Co., 3428 W. 48th Place, Chicago Crown Cork Specialty Corp., Decatur, Ill. George D. Ellis & Sons, 309 N. 3rd St., Phila. Standard Containers, Inc., Rockaway, N. J. U-Pressit Corp., 420 Lexington Ave., N. Y.

#### CANS (Fibre or Paper)

American Can Co., 230 Park Ave., N. Y. Cambridge Box Co., 196 Broadway, Cambridge Box Co., 196 Broadway,
Cambridge, Mass.
Canister Co., Phillipsburg, N. J.
Cin-Made Corp., 294 Eggleston Ave., Cincinnati
Cleveland Container Co., 10630 Berea Rd., Cleveland
Continental Can Co., 100 E. 42nd St., N. Y.
Cross Paper Products Co., 2595 Third Ave., N. Y.
Fonda Container Co., 41 Park Row, N. Y.
Gardner-Richardson Co., Middletown, O.
Master Package Corp., Owen, Wis.
Middlesex Paper Tube Co., 342 Madison Ave., N. Y.
Midwest Paper Tube Co., 707 N. 3rd St., Minneapolia
National Paper Can Co., Cudahy, Wis.
R. C. Can Co., 121 Chambers St., St. Louis
W. C. Ritchie & Co., 8801 S. Baltimore Ave., Chicago
Sutherland Paper Co., Kalamazoo, Mich. Sutherland Paper Co., Kalamazoo, Mich.

#### CANS (Sifter Top)

American Can Co., 230 Park Ave., N. Y.
Anchor Hocking Glass Corp., Lancaster, Ohio
Cambridge Paper Box Co., 196 Broadway,
Cambridge, Mass.
Canister Co., Phillipsburg, N. J.
Cans, Inc., 3217 W. 47th Pl., Chicago
Cleveland Container Co., 10630 Berea Rd., Cleveland
Cin-Made Corp., 294 Eggleston Ave., Cincinnati
Continental Can Co., Inc., 100 E. 42nd St., N. Y.
Crown Can Co., Erie Ave. & H St., Phila.
Middlesex Paper Tube Co., 342 Madison Ave., N. Y.
National Can Co., 110 E. 42nd St., N. Y.
Owens-Illinois Can Co., Toledo, O.
R. C. Can Co., 121 Chambrys St., St. Louis
W. C. Ritchie & Co., 3801 S. Baltimore Ave., Chicago
Sefton Fibre Can Co., 3275 Big Bend Blyd., St. Louis
Standard Container, Inc., Bloomfield, N. J.
Sutherland Paper Co., Kalamazoo, Mich.

#### CANS (Steel) (See Pails, Steel)

#### CANS (Tin)

American Can Co., 230 Park Ave., N. Y.
Anchor Hocking Glass Corp., Lancaster, Ohio
Central Can Co., 2415 W. 19th St., Chicago
Cans, Inc., 3217 W. 47th Pl., Chicago
J. L. Clark Mfg. Co., Rockford, Ill.
Columbia Can Co., 5221 Natural Bridge Ave., St. Louis
Continental Can Co., Inc., 100 E. 42nd St., N. Y.
Crown Can Co., Erie Ave. & H St., Phila.
George D. Ellis & Sons, 309 N. 3rd St., Phila.
Fein's Tin Can Co., Bush Terminal, Brooklyn
General Can Co., 1603 S. Canal St., Chicago
Heekin Can Co., Cincinnati
National Can Co., 110 E. 42nd St., N. Y.
W. F. Robertson Steel & Iron Co., Springfield, O.
St. Louis Can Co., 904 S. 14th St., St. Louis
Standard Container, Inc., Rockaway, N. J.

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Pneumatic Scale Corp., North Quincy, Mass.
Scientific Filter Co., 1 Franklin Sq., N. Y.
Stein Equipment Corp., 426 Broome St. Y. (Used)
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CARBON for bleaching oils, glycerine, etc. (see Decolorizing Carbons)

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(see also Dealers)

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Penna. Salt Mfg. Co., 1000 Widener Bidg., Phila.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Westvaco Chlorine Prods., 405 Lexington Ave., N. Y.

#### CARBON TETRACHLORIDE

(see also Dealers)

J. T. Baker Chemical Co., Phillipsburg, N. J.
Brown Co., Portland, Me.
Diamond Alkali Corp., 535 Smithfield St., Pittsburgh
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Niagara Smelting Corp., Niagara Falls, N. Y.
Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Phila.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Westvaco Chlorine Prods., 405 Lexington Ave., N. Y.

#### CARNAUBA WAX (see WAXES)

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#### CARTON HANDLING SYSTEMS

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Self-Lifting Piano Truck Co., Findlay, Ohio
Stephans-Adamson Mfg. Co., Aurora, Ill.
Weigh Right Automatic Scale Co., Joliet, Ill.

#### CARTON LINING MACHINES (see Lining Machinery)

CARTON SEALING MACHINERY (see Sealing Machinery)

#### CARTONING MACHINERY

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J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 R. 9th St., N. Y. (Used)
Johnson Automatic Sealer Co., Battle Creek, Mich.
R. A. Jones & Co., Cincinnati, Ohio
Newman Tallow & Soap Machy. Co., 1051 W. 35th St.,
Chicago
Pneumatic Scale Corp., North Quincy, Mass.
F. B. Redington Co., 112 S. Sangamon St., Chicago
A. H. Ross & Co., Ludlow, Ky.
Stein Equipment Corp., 426 Broome St., N. Y. (Used)
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Triangle Package Machinery Co., 906 N. Spaulding Ave.,
Chicago
Weigh Right Automatic Scale Co., Joliet, Ill.

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Gardner-Richardson Co., Middletown, Ohio
Nevins-Church Co., 250 Park Ave., N. Y.
New England Card & Paper Co., Springfield, Mass.
Pictorial Package Co., Aurora, Ill.
Randolph Box & Label Co., 843 W. VanBuren St., Chicago
W. C. Ritchie & Co., 8855 S. Baltimore Ave., Chicago
Robertson Paper Box Co., Inc., Montville, Conn.
George Schmitt & Co., Grand & Florence Sts., Brooklyn
Sutherland Paper Co., Kalamazoo, Mich.
U. S. Printing & Lithographing Co., Cincinnati, Ohio
Universal Folding Box Co., Monroe & 13th St., Hoboken,
N. J.

#### CASE SEALING MACHINERY (see Sealing Machinery)

#### CASLIN

American-British Chem. Supplies, Inc., 180 Madison Ave., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Casein Co. of America, Div. of The Borden Co., 350 Madison Ave., N. Y.
Wm. Diehl & Co., 336 W. 42nd St., N. Y. 18
E. I. Du Pont de Nemours & Co., Wilmington, Del.
He:cules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Land-o-Lakes Creameries, Minneapolis
National Casein Co., 603 W. 80th St., Chicago
Sergeant Chem. Co., 350 5th Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

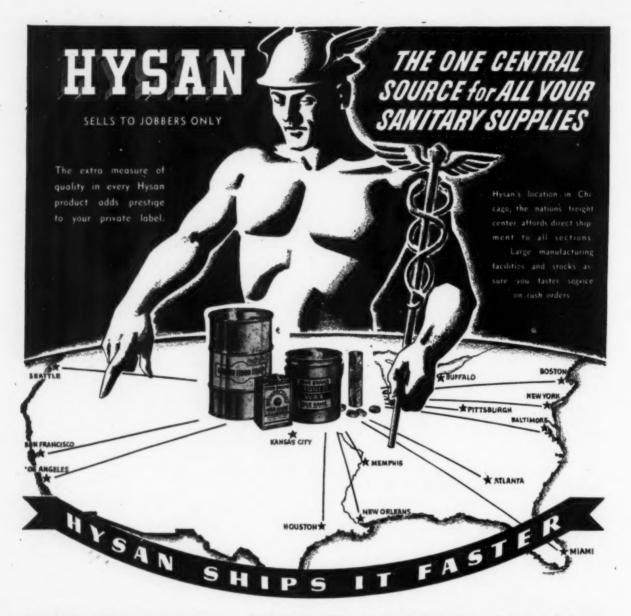
#### CASES (Fibre) (see Boxes, Cans)

CASES (Corrugated) (see Boxes)

CASSIA OIL (see Essential Oils)

#### CASTILE SOAP, BAR

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CLEANERS . DISINFECTANTS . SDAPS . DEODORANTS . BLOCS . INSECTICIDES . POLISHES . WAXES . FLOOR TREATMENTS

#### CASTILE SOAP, BAR (Contd.)

Hockwald Chem. Co., 135 Mississippi St., San Francisco Kranich Soap Co., 54 Richards St., Brooklyn Lockwood-Brackett Co., Waltham Station, Boston Los Angeles Soap Co., Los Angeles, Calif. Newell Gutradt Co., 350 Fremont St., San Francisco Peck's Prods. Co., 5238 N. 2nd St., St. Louis Procter & Gamble Co., Ivorydale, O. Geo. A. Schmidt Co., 236 W. North Ave., Chicago Solshine Mfg. Co., 412 2nd St., Fall River, Mass. John T. Stanley Co., 642 W. 30th St., N. Y. Superior Soap Corp., 121 Nostrand Ave., Bklyn. Swift & Co., Chicago Allen B. Wrisley Co., 6801 W. 65th St., Chicago

#### CASTILE SOAP, LIQUID

Ampion Corp., 47-02 5th St., Long Island City, N. Y. Antiseptol Co., 5524 Northwest Highway, Chicago Baums Castorine Co., 200 Matthew St., Rome, N. Y. Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago Clifton Chemical Co., 247 Front St., N. Y. Davies-Young Soap Co., Dayton, O. Eagle Soap Corp., Huntington, Ind. Fuld Bros., 702 S. Wolfe St., Baltimore James Good, Inc., Kensington, Phila. Hang Laboratories, Inc., 6101 S. May St., Chicago Harley Soap Co., Pierce & Orthodox Sts., Phila. Higley Chem. Co., Dubuque, Iowa Hockwald Chem. Co., 135 Mississippi St., San Francisco R. M. Hollingshead Corp., Camden, N. J. Hunt Mfg. Co., Lisbon Rd., Cleveland Hysan Prods. Co., 58 E. Cullerton St., Chicago Kranich Soap Co., 54 Richards St., Brooklyn Lewis Soap & Chem. Co., 2210 San Pablo Ave. Oakland, Calif.
Los Angeles Soap Co., 617 E. 1st St., Los Angeles, National Oil Products Co., Harrison, N. J. Palmer Products, Inc., Waukesha, Wisc. Peck's Prods. Co., 5238 N. 2nd St., St. Louis Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago Peck's Prods. Co., 5238 N. 2nd St., St. Louis
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Sanitary Soap Co., 104 Railroad Ave., Paterson, N. J.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St. N. Y.
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Superior Soap Corp., 121 Nostrand Ave., Bklyn.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

#### CASTOR OIL

(see also Dealers)

Archer-Daniels-Midland Co., Minneapolis
Baker Castor Oil Co., 120 Broadway, N. Y.
Balfour, Guthrie & Co., 67 Wall St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Otto A. C. Hagen Co., 929 Public Ledger Bldg., Phila.
Spencer Kellogg & Sons, Buffalo, N. Y.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco J. H. Redding, Inc., 17 Battery Place, N. Y. H. H. Rosenthal Co., 25 E. 26th St., N. Y. Arthur C. Trask Co., 4103 S. La Salle St., Chicago Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### CATALYSTS

Aluminum Co. of America, Gulf Bldg., Pittsburgh Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y. General Chem. Co., 40 Rector St., N. Y. Harshaw Chem. Co., Cleveland Hooker Electrochemical Co., Niagara Falls, N. Y. Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

#### CATTLE DIPS AND SPRAYS

(see also Sheep Dibs)

An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Cal. Ampion Corp., 47-02 5th St., Long Island City, N. Y. Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago

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Flake	76% Na <sub>2</sub> O, Fine and Medium

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Baird & McGuire, Holbrook, Mass.
Baird & McGuire, Inc. of Mo., St. Louis
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
California Spray-Chemical Corp., Richmond, Calif.
Cary Mfg. Co., 4917 E. Michigan St., Indianapolis
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 2526 W. Congress St.,
Chicago
Chipman Chem. Co., Bound Brook, N. J.
Clifton Chemical Co., 247 Front St., N. Y.
Davies-Young Soap Co., Dayton, O.
Delta Chem. Co., 4 Payson Ave., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Goulard & Olena, 140 Liberty St., N. Y.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Harrison Oil Co., 5110 N. 35th St., Milwaukee
Higley Chem. Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
James Huggins & Son, 239 Medford St., Malden, Mass.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Hunt Mfg. Co., Lisbon Rd., Cleveland
William E. Jordan & Bros., 2590 Atlantic Ave., Brooklyn
Kemico Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Koppers Co., White Tar Div., Kearney, N. J.
McLaughlin, Gormley, King Co., Minneapolis, Minn.
National Oil Products Co., Harrison, N. J.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Prod. Co., 522-40 N. 2nd St., St. Louis
Rex Research Corp., Toledo
Theo. B. Robertson Prods. Co., 700 W. Division St..
Chicago
Schaeffer Bros. & Powell Mfg. Co., 102 Barton St.
St. Louis
Shores Co., Cedar Rapids, Ia.

Standard Oil Co. (Calif.), 225 Bush St., San Francisco Standard Oil Co. (Ohio), Midland Bldg., Cleveland Texol Chem. Wks., 3 Winter St., Worcester, Mass. Thompson-Hayward Chem. Co., 2915 Southwest Blvd., Kansas City, Mo.

Tobacco By-Products & Chem. Corp., Louisville, Ky.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago Universal Chem. Corp., Akron, O.
Velsicol Corp., 120 E. Pearson St., Chicago Victory Chem. Co., 148 Fairmont Ave., Phila.
Robert C. White Co., Falls of Schuylkill, Phila.

#### CATTLE SPRAY BASE (see Petroleum Bases)

CAUSTIC POTASH (see Potash, Caustic)

#### CAUSTIC SODA

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Belle Alkali Co., Belle, W. Va.
Brown Company, Portland, Me.
Champion Fibre Co., Canton, N. C.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co.,
230 Park Ave., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Kimberley-Clark Paper Co., Neenah, Wis.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Michigan Electrochemical Co., Menominee, Mich.
Monsanto Chem. Co., St. Louis 4
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Niagara Smelting Corp., Niagara Falls, N. Y.
Oxford Paper Co., White Mountains, N. H.
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Pittsburgh Plate Glass Co., Columbia Chemical Div., Grant Bldg., Pittsburgh
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Westvaco Chlorine Prods. Co., 405 Lexington Ave., N. Y.
Welch, Holme & Clark, 563 Greenwich St.,, N. Y.
Wyandotte Chemicals Corp., Michigan Alkali Div.,
Wyandotte, Mich.

#### CEDAR LEAF OIL (see Essential Oils)

CEDARWOOD OIL (see Essential Oils)

#### CERESIN WAX (see Waxes)

#### CHALK (Calcium Carbonate)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
H. J. Baker & Bro., 271 Madison Ave., N. Y.
Binney & Smith Co., 41 E. 42nd St., N. Y.
Charles B. Chrystal Co., 53 Park Pl., N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. Du Pont de Nemours & Co., Wilmington, Del.
A. C. Drury & Co., 219 East North Water St., Chicago
Fezandie & Sperrle, 205 Fulton St., N. Y.
E. Fougera & Co., 41 Maiden Lane, N. Y.
Goris & Co., 8124 S. Hoyne Ave., Chicago
K. F. Griffiths Co., 110 E. 42nd St., N. Y.
Hammill & Gillespie, 225 Broadway, N. Y.
Charles Hardy, Inc., 415 Lexington Ave., N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co.,
230 Park Ave., N. Y.
Innis Speiden & Co., 117 Liberty St., N. Y.
James H. Rhodes & Co., 157 W. Hubbard St., Chicago
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Tamms Silica Co., 228 N. LaSalle St., Chicago
Whittaker, Clark & Daniels, Inc., 260 W. Broadway,
New York American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y. New York Witco Chemical Co., 295 Madison Ave., N. Y.

#### CHAMOIS

Addison Sponge Co., 118 E. Court St., Cincinnati Allied Industrial Prods. Co., 620 N. Michigan St., Chicago Amer. Sponge & Chamois Co., 47 Ann St., N. Y. Atlas Sponge Co., 291 Church St., N. Y. Churchill Mfg. Co., Galesburg, Ill. E. I. Du Pont de Nemours & Co., Wilmington, Del. Great Eastern Sponge & Chamois Co., 833 N. Patt. Pk. Ave., Baltimore
Jos. Neihaus Co., 341 W. 4th St., Cincinnati
James H. Rhodes & Co., 157 W. Hubbard St., Chicago
Schroeder & Tremayne, 500 N. Coml. St., St. Louis

#### CHEMICALS, LOCAL DEALERS (see Dealers,

CHEMISTS, CONSULTING, See Consultants, See Laboratories, Testing

#### CHILLING ROLLS

Consolidated Prods. Co., 15 Park Row, N. Y. (Used) First Machy. Corp., 819 E. 9th St., N. Y. (Used) William Garrigue & Co., 9 S. Clinton St., Chicago Houchin Machy. Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
J. M. Lehmann Co., Lyndhurst, N. J.
Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago (Used)
Proctor & Schwartz, 7th St. & Tabor Rd., Philadelphia C. G. Sargent's Sons Corp., Graniteville, Mass.
Stein Equipment Corp., 426 Broome St., N. Y. (Used)
F. J. Stokes Machine Co., 5974 E. Tabor Rd., Phila.
Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

#### CHIPPERS (see Soap Machinery)

#### CHIP SOAPS (including Flakes)

American Soap & Washoline Co., Cohoes, N. Y. Armour Soap Co., 1355 W. 31st St., Chicage Beach Soap Co., Lawrence, Mass. Chicago Sanitary Products Co., 3100 S. Throop St., Reach Soap Co., Lawrence, Mass.
Chicago Sanitary Products Co., 3100 S. Throop St., Chicago
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Du Bois Soap Co., Cincinnati, Ohio
J. Eavenson & Sons, Camden, N. J.
Fels & Co., Philadelphia
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, Ohio
R. M. Hollingshead Corp., Camden, N. J.
Lever Bros. Co., Cambridge, Mass.
Los Angeles Soap Co., Los Angeles, Calif.
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
National Milling & Chem. Co., Manayunk, Phila.
National Oil Products Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Geo. Schmidt Co., 236 W. North Ave., Chicago, Ill.
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Chicago
Warren Soap Mfg. Co., 51 Warren St., Cambridge, Mass.
M. Werk Co., Cincinnati
Chas. W. Young & Co., 1247 N. 26th St., Phila.

#### CHLORIDE OF LIME (see Bleaching Powder

#### CHLORINE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh E. I. Du Pont de Nemours Co., Wilmington, Del. Hooker Electrochemical Co., Niagara Falls, N. Y. Innis, Speiden & Co., 117 Liberty St., N. Y. Mathieson Alkali Works, 60 E. 42nd St., N. Y. Monsanto Chemical Works, 1724 S. 2nd St., St. Louis Niagara Alkali Co., 60 E. 42nd St., N. Y. Pennsylvania Salt Mfg. Co., Widener Bldg., Phila. Pittsburgh Plate Glass Co., Columbia Chemical Div., Grant Bldg., Pittsburgh H. H. Rosenthal Co., 25 E. 26th St., N. Y. Solvay Sales Corp., 40 Rector St., N. Y. Stauffer Chem. Co., 420 Lexington Ave., N. Y. Jos. Turner & Co., Ridgefield, N. J. Westvaco Chlorine Prods. Co., 405 Lexington Ave., N. Y. Wyandotte Chemicals Corp., Michigan Alkali Div., Wyandotte, Mich.

#### CHLORINE DISINFECTANTS (see Disinfectants)

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Brown Company, Portland, Me.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Malinckrodt Chemical Works, St. Louis, Mo.
Merck & Co., Rahway, N. J.
Niagara Smelting Corp., Niagara Falls, N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.

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CITRONELLA OIL (see Essential Oils)

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(see also Bleaching Earths)

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Atlantic Refining Co., 260 S. Broad St., Phila.
Attapulgus Clay Co., 260 So. Broad St., Phila.
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Dicalite Co., 120 Wall St., N. Y.
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Filtrol Corp., 634 S. Spring St., Los Angeles
Goris & Co., 8124 S. Hoyne Ave., Chicago Hammil & Gillespie, 225 Broadway, N. Y.
Hercules Powder Co., Wilmington, Del.
J. M. Huber, Inc., 460 W. 34th St., N. Y.
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Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y. Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
International Silica Co., Cairo, Ill.
Natura Minerals Co., 108 W. 6th St., Los Angeles
National Sales Corp., 33 E. 13th St., Cincinnati
Owyhee Chemical Products Co., 300 W. Adams St.,
Chicago
Peerless Clay & Mineral Co., Pueblo, Colo.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
F. E. Schundler & Co., Joliet, Ill.
Sinclair Refining Co., East Chicago, Ind.
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
A. E. Starkie Co., 5461 W. Division St., Chicago
Tamms Silica Co., 228 N. LaSalle St., Chicago
United Clay Mines Corp., 101 Oakland St., Trenton, N. J.
R. T. Vanderbilt Co., 230 Park Ave., N. Y.
Whittaker, Clark & Daniels, 260 W. Broadway, N. Y.
Witco Chemical Co., 295 Madison Ave., N. Y.
Wyodak Chem. Co., 4600 E. 71st St., Cleveland

#### CLEANERS, LIQUID (see also FLOOR SCRUB SOAPS)

American Chemical Paint Co., Ambler, Pa.
American Soap & Washoline Co., Cohoes, N. Y.
Ampion Corp., 47-02 5th St., Long Island City, N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armour & Co., 1355 W. 31st, Chicago
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire, Inc., of Mo., St. Louis
Banner Chem. Prods. Co., 60 Elm St., Newark, N. J.
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Barton Chemical Co., 3907 S. Langley Ave., Chicago
Boston Chemical Industries, 64 E. Brookline St., Boston
Bri-Test Prods. Corp., 810 E. 136th St., Bronx 54, N. Y.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Supply Co., Plymouth Bldg., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Laboratories, 22-19 37th Ave., L. I. City, N. Y.
Continental Car-Na-Var Corp., Brazil, Ind.
Curran Corp., Malden, Mass.
Davies-Young Saap Co., Davton, Ohio Continental Car-Na-Var Corp., Brazil, Ind.
Curran Corp., Malden, Mass.
Davies-Young Soap Co., Dayton, Ohio
Delta Chemical Co., 4 Payson Ave., N. Y.
Diversey Corp., 53 W. Jackson Blvd., Chicago
Eagle Soap Corp., Huntington, Ind.
Franklin Research Co., 5134 Lancaster Ave., Phila., Pa.
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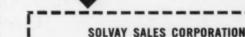
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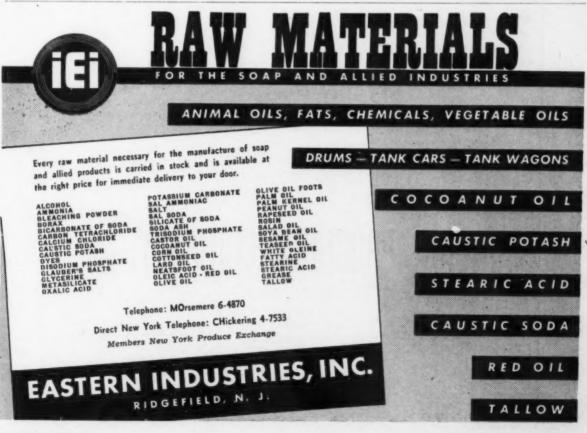
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Skinner & Sherman, 246 Stuart St., Boston Foster D. Snell, 305 Washington St., Brooklyn Stillwell & Gladding, 130 Cedar St., N. Y. Dr. E. G. Thomssen, 306 Center St., Winona, Minn. Wurster & Sanger, 5201 Kenwood Ave., Chicago

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Dow Co., 1025 Franklin St., Louisville, Ky.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
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B. F. Gump Co., 431 S. Clinton St., Chicago
Horix Mfg. Co., Pittsburgh
Houchin Machinery Co., Hawthorne, N. J.
Jeffrey Mfg. Co., 924 N. 4th St., Columbus, O.
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Lancaster Iron Works, Lancaster, Pa.
Link-Belt Co., 910 S. Michigan, Chicago
Newman Tallow & Soap Machy. Co., 1051 W. 35th St.,
Chicago
Pneumatic Scale Corp., North Quincy, Mass.
Read Machy. Co., York, Pa.
George G. Rodgers Co., 183 Varick St., N. Y.
Sprout Waldron & Co., Muncy, Pa.
Standard Conveyor Co., N. St. Paul, Minn.
Stephens-Adamson Mfg. Co., Aurora, Ill.
Sterns Conveyor Co., Cleveland
F. J. Stokes Machine Co., Tabor Rd., Phila., Pa.
Triangle Package Machy. Co., 906 N. Spaulding Ave.,
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Weigh Right Automatic Scale Co., 404 Grant Ave.,
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#### COPPER NAPHTHENATE

Cuprinol, Inc., 7 Water St., Boston General Petroleum Corp. of Calif., 108 W. 2nd St.. Los Angeles Harshaw Chemical Co., 1945 E. 97th St., Cleveland Nuodex Prods. Co., 312 Division St., Elizabeth, N. J.

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E. I. Du Pont de Nemours & Co., Wilmington, Del. Faesy & Besthoff, Inc., 22 E. 40th St., N. Y.
General Chemical Co., 40 Rector St., N. Y.
Hawshaw Chemical Co., 1945 E. 97th St., Cleveland Innis, Speiden & Co., 117 Liberty St., N. Y.
Merck & Co., Rahway, N. J.
Raritan Copper Wks., Perth Amboy, N. J.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sergeant Chem. Co., 350—5th Ave., N. Y.
Tennessee Copper Co., 61 Broadway, N. Y.

#### CORKING MACHINERY

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Horix Mfg. Co., Pittsburgh
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Newman, Tallow & Soap Mchy. Co., 1051 W. 35th St.,
Chicago
Pneumatic Scale Corp., North Quincy, Mass.
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Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Julius Schmid, Inc., 423 W. 55th St., N. Y.
Shores Co., Cedar Rapids, Ia.
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#### COTTONSEED OIL

(see also Brokers and Dealers)

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Otto A. C. Hagen Corp., 929 Public Ledger Bldg., Phila. Spencer Kellogg & Sons, Buffalo, N. Y.
Portsmouth Cotton Oil Refining Corp., Portsmouth, Va. Procter & Gamble Co., Cincinnati, O.
J. H. Redding Co., 17 Battery Pl., N. Y.
Sergeant Chem. Co., 350—5th Ave., N. Y.
C. F. Simonin's Sons, Phila.
Southern Cotton Oil Co., Produce Exchange, N. Y.
A. E. Starkie Co., 5461 W. Division St., Chicago Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### COUMARIN

(see also Aromatic Chemicals)

Dodge & Olcott Co., 180 Varick St., N. Y.
Dow Chemical Co., Midland, Mich.
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CRESYLIC ACID (see Coal Tar Raw Materials)

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Huber Machine Co., 259—46th St., Brooklyn
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Newman Tallow & Soap Machy. Co., 1051 W. 35th St.,
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Patterson Foundry & Machine Co., East Liverpool, Ohio
Ernest Scott & Co., Fall River, Mass.
Sowers, Mfg. Co., 1296 Niagara St., Buffalo, N. Y.
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Derris, Inc., 79 Wall St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
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Lenape Trading Co., 233 Broadway, N. Y.
McCormick & Co., Baltimore, Md.
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S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 1 Park Ave., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
Frank B. Ross Co., 507—8th St., Hoboken, N. J.
U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y.
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Whitmire Research Corp., 339 S. Vandeventer, St. Louis

CUTTING TABLES (see Soap Machinery)

CYANIDES (see Fumigants) (see Sodium Cyanide)

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Brown Co., Portland, Me.
Hercules Powder Co., Wilmington, Del.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co.,
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Orbis Products Corp., 215 Pearl St., N. Y.

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Michigan Chemical Co., St. Louis, Mich.
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Hummel Chemical Co., 90 West St., N. Y.
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Smith-Weihman Co., 15 Moore St., N. Y.
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Boston Chemical Industries, 64 E. Brookline St., Boston Calgon, Inc., Pittsburgh
Candy & Co., 2515 W. 35th St., Chicago
Chemical Mfg. & Dist. Co., Easton, Pa.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago Cowles Detergent Co., 7016 Euclid Ave., Cleveland Curran Corp., Malden Mass.
Delta Chem. Co., 4 Payson Ave., N. Y.
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
Diversey Corp., 53 W. Jackson Blvd., Chicago DuBois Soap Co., Cincinnati
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Economics Laboratory, Globe Bldg., St. Paul Fuld Bros., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hercules Powder Co., Wilmington, Dela.

Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco,
Calif.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Los Angeles Soap Co., 617 E. 1st St., Los Angeles
A. R. Maas Chem. Co., South Gate, Calif.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Monsanto Chemical Co., 1724 S. 2nd St., St. Louis
Napthole, Inc., 15 E. 26th St., New York
National Oil Products Co., Harrison, N. J.
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
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Pittsburgh Plate Glass Co., Columbia Chemical Div.,
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Port Huron Detergent Co., Port Huron, Mich.
Theo. B. Robertson Prods. Co., 700 W. Division St.,
Chicago
Sanitary Soap Co., 104 Railroad Ave., Patterson, N. J.
Skotch Prods. Corp., 2710 Detroit Ave., Cleveland
Stevens Soap Corp., 200 Sullivan St., Brooklyn, N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Chicago
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Jos. Turner & Co., Ridgefield, N. J.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Westvaco Chlorine Prods. Co., 405 Lexington Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### Wyandotte Chemical Corp., Wyandotte, Mich. DETERGENTS, Synthetic (Non-soap) Raw Materials

American Cyanamid & Chemical Corp.,
30 Rockefeller Plaza, N. Y.
Atlantic Refining Co., 260 S. Broad St., Phila.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Chem. Mfg. & Dist. Co., Easton, Pa.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
General Drug Co., 125 Barclay St., N. Y.
General Dyestuff Corp., 435 Hudson St., N. Y.
Michel Export Co., Inc., 90 Broad St., N. Y.
Monsanto Chem. Co., St. Louis
National Aniline & Chemical Co., 40 Rector St., N. Y.
National Oil Products Co., Harrison, N. J.
Rohm & Haas Co., 222 W. Washington Sq., Phila.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Stanco Distributors, 216 W. 14th St., N. Y.

#### DETERGENTS, Synthetic Organic, (Non-soap)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Atlantic Refining Co., 260 S. Broad St., Phila.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Chem. Mfg. & Dist. Co., Easton, Pa.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Commercial Solvents Corp., Terre Haute, Ind.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Emulsol Corp., 59 E. Madison St., Chicago
Fuld Bros., 702 S. Wolfe St., Baltimore
General Drug Co., 125 Barclay St., N. Y.
General Dyestuff Corp., 435 Hudson St., N. Y.
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hercules Powder Co., Wilmington, Del.
Arnold Hoffman Co., Providence, R. I.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Lever Bros. Co., Cambridge, Mass.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Mackenzie Laboratories, Front & Yarnall Sts., Chester,
Pennsylvania
Michel Export Co., 90 Broad St., N. Y.
Monsanto Chemical Co., St. Louis
National Aniline & Chem. Co., 40 Rector St., N. Y.
National Oil Products Co., Harrison, N. J.
Procter & Gamble Co., Cincinnati, O.
Richards Sales Corp., Jersey City, N. J.
Sandoz Chem. Wks., 61 Van Dam St., N. Y.
Skotch Prods. Corp., 2710 Detroit Ave., Cleveland
Solvay Sales Corp., 40 Rector St., N. Y.
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#### DIATOMACEOUS EARTH, (see Bleaching Earths)

DIES (see Soap Dies)

DIETHANOLAMINE (see Ethanolamine)

#### DIFFUSERS (Steam and Air)

Electric Sprayit Co., Sheboygan, Wisc. Fumeral Co., Racine, Wisc. Mystic Products Co., 417 No. 5th St., Minneapolis

#### DIPHENYL OXIDE (see Aromatic Chemicals)

DIP OIL (see Coal Tar Raw Materials)

#### DISH WASHING COMPOUND DISPENSERS

Wm. M. Britton Co., 8610 Graham Ave., Los Angeles Chemical Mfg. & Dist. Co., Easton, Pa.
Economics Laboratory, Inc., 622 Globe Bldg., St. Paul Fuld Bros., 702 S. Wolfe St., Baltimore
Hockwald Chem. Co., 135 Mississippi St., San Francisco Hysan Prods. Co., 58 E. Cullerton St., Chicago Mathieson Alkali Wks., 60 E. 42nd St., N. Y. (Cakes)
John T. Stanley Co., 642 W. 30th St., N. Y.
V. C. Products Co., Beury Bldg., Philadelphia (Powders)

#### DISH WASHING COMPOUNDS (see Cleaning Compounds, Dry)

#### DISINFECTANTS, CHLORINATED

Ampion Corp., 42-02 5th St., Long Island City, N. Y.
Banner Chem. Prods. Co., 60 Elm St., Newark, N. J.
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Laboratories, 22-19 37th Ave., L. I. City, N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco,
Calif.
Arnold Hoffman Co., Providence, R. I.
R. M. Hollingshead Corp., Camden, N. J.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
McLaughlin Gormley King Co., Minneapolis, Minn.
Merck & Co., Rahway, N. J.
Midland Labs, Dubuque, Iowa
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
North Coast Soap & Chem. Works, Seattle, Wash.
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Puritan Chem. Co., Atlanta, Ga.
Theo. B. Robertson Prods. Co., 874 Seward St.,
Rochester, N. Y.
Sherwin-Williams Co., 601 Canal Rd., Cleveland
Thompson-Hayward Chemical Co., Kansas City, Mo.
Trojan Products & Mfg. Co., 3107 S. Wabbash Ave.,
Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
Chicago
Victory Chem. Co., 148 Fairmount Ave., Phila.

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Ampion Corp., 47-02 5th St., Long Island City, N. Y. Antiseptol Co., 5524 Northwest Highway, Chicago Baird & McGuire, Inc., Holbrook, Mass. Baird & McGuire, Inc. of Mo., St. Louis Banner Chem. Prods. Corp., 60 Elm St., Newark, N. J. Boston Chemical Industries, 64 E. Brookline St., Boston Bri-Test Prods. Corp., 810 E. 136th St., Bronx, N. Y.

Samuel Cabot, Inc., 141 Milk St., Boston
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., Plymouth Bldg., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Cole Laboratories, 22-19 37th Ave., L. I. City, N. Y.
Continental Car-Na-Var Corp., Brazil, Ind.
Wm. Cooper & Nephews, 1909 Clifton Ave., Chicago
Creco Co., Inc., Creco Bldg., Long Island City, N. Y.
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Elkay Products Co., 323 W. 16th St., N. Y.
Emulsol Corp., 59 E. Madison St., Chicago
Fergusson Laboratories, Drexel Bldg., Phila.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Harley Soap Co., Pierce & Orthodox Sts., Phila.
Higley Chem. Co., 135 Mississippi St., San Francisco
Arnold Hoffman Co., Providence, R. I.
R. M. Hollingshead Corp., Camden, N. J.
James Huggins & Son, 239 Medford St., Malden, Mass.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Koppers Co., White Tar Div., Kearny, N. J.
Merck & Co., Rahway, N. J.
Midland Labs., Dubuque, Iowa
National Oil Products Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wisc.
Peck's Prods Co., 5240 N. 2nd St., St. Louis
Puritan Chem. Co., Atlanta, Ga.
Riverside Chem. Co., N. Tonawanda, N. Y. Puritan Chem. Co., Atlanta, Ga. Riverside Chem. Co., N. Tonawanda, N. Y. Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio
Shores Co., Cedar Rapids, Ia.
Solshine Mfg. Co., 412—2nd St., Fall River, Mass.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Tesco Chem. Co., P. O. Box 4748, Atlanta
Texol Chem. Wks., 3 Winter St., Worcester, Mass. (Pine
Oil only) Oil only) Oil only)
Uncle Sam Chem. Co., 573 W. 131st St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Vliet & Co., 638 Monroe St., Brooklyn
West Disinfecting Co., Long Island City, N. Y.
Western Chem. & Mfg. Co.,
4032 S. Wentworth Ave., Chicago
York Chemical Co., 424 W. 18th St., N. Y.

#### DISINFECTANTS, Synthetic

Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire, Inc., St. Louis
Fuld Bros., 702 S. Wolfe St., Baltimore
Chemical Supply Co., Plymouth Bldg., Cleveland
Higley Chem. Co., Dubuque, Is.
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Koppers Co., White Tar Div., Kearny, N. J.
Monsanto Chem. Co., St. Louis
Puritan Chem. Co., Atlanta, Ga.
Texol Chem. Wks., 3 Winter St., Worcester, Mass.

#### DISINFECTANTS, COEFFICIENT TESTS (see Laboratories)

DISPENSERS, Liquid Soap (see Soap Dispensers)

DISSEMINATORS, PERFUME (see Perfume Disseminators)

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Acme White Lead Co., Detroit
Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
California Spray-Chemical Corp., Richmond, Calif.
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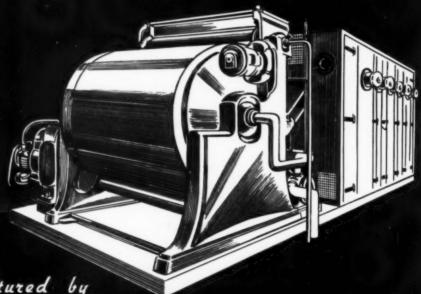


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Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
U. S. Sanitary Specialties Corp., 435 S. Western Ave., U. S. San Chicago

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Rochester Germicide Co., Rochester, N. Y.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
John Sunshine Chem. Co., 604 W. Lake St., Chicago
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
Chicago Chicago

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Ampion Corp., 47-02 5th St., Long Island City, N. Y. Chemical Mfg. & Dist. Co., Easton, Pa. Clifton Chemical Co., 247 Front St., N. Y. Eagle Soap Corp., Huntington, Ind. Fuld Bros., 702 S. Wolfe St., Baltimore Garnet Chem. Corp., 911 N. Lumber St., Allentown, Pa. Hockwald Chem. Co., 135 Mississippi St., San Francisco Hysan Prods. Co., 58 E. Cullerton St., Chicago Palmer Products, Inc., Waukesha, Wisc. Rochester Germicide Co., 16 Downing Pl., Rochester. Geo. B. Robbins Dis. Co., 42 Charlton St., Boston Uncle Sam Chem. Co., 573 W. 131st St., N. Y. U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago Chicago West Disinfecting Co., Long Island City, N. Y.

DRUM FILLING MACHINERY (see Filling Machinery,

DRUM WASHERS (see Washing Machinery, Drums)

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American Steel Package Co., Defiance, O.
Draper Mfg. Co., Cleveland
Fetter Steel Barrel Corp., Buffalo
Globe Steel Barrel Co., Cleveland
Inland Steel-Container Co., 6532 S. Menard St., Chicago
Manion Steel Barrel Co., Rouseville, Pa.
National Steel Barrel Co., 3860 E. 91st St., Cleveland
Nilos Steel Prod Co. Nilos Obio. Niles Steel Prod. Co., Niles, Ohio Niles Steel Prod. Co., Niles, Ohio
Petroleum Iron Works, Co., Sharon, Pa.
Pittsburgh Can Co., Pittsburgh
Pressed Steel Tank Co., Milwaukee, Wis.
Republic Steel Package Co., 7930 Jones Rd., Cleveland
Rheem Mfg. Co., 570 Lexington Ave., N. Y.
St. Louis Steel Package Co., St. Louis
John Trageser Steam Copper Works
Grand Ave., Maspeth, L. I., N. Y.
Vulcan Stamping & Mfg. Co., Bellwood, Ill.
Wackman Welded Ware Co., 7th & Victor Sts., St. Louis
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Clifton Chemical Co., 247 Front St., N. Y.
Davies-Young Soap Co., Dayton, O.
Dixo Co., 235 River Dr., Garfield, N. J.
Eagle Soap Corp., Huntington, Ind.
J. Eavenson & Sons, Del & Penn Sts., Camden, N. J.
Fuld Bros., 702 S. Wolfe St., Baltimore
Haag Laboratories, Inc., 6101 S. May St., Chicage
Harley Soap Co., Pierce and Orthodox Sts., Phila.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hysan Prods. Co., 58 E. Cullerton St., Chicago
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Los Angeles Soap Co., 617 E. 1st St., Los Angeles
Midland Chem. Labs., Dubuque, Ia.
National Oil Products Co., Harrison, N. J.
North Coast Chem. & Soap Wks., Seattle, Wash.
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Richards Sales Corp., Warren & Morris Sts., Jersey
City, N. J. Richards Sales Corp., Warren & Morris Sts., Jersey City, N. J.
Riverside Mfg. Co., 4919 Conn St., St. Louis
John T. Stanley Co., 642 W. 30th St., N. Y.
R. R. Street & Co., 561 W. Monroe St., Chicago
Swift & Co., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Ultra Chem. Wks., Inc., Kitay Bldg., Paterson, N. J.
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Chicago Chicago M. Werk Co., Cincinnati, O.

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Buckeye Dryer Co., 131 W. Lake St., Chicago
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Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Drying Systems, Inc., 1800 Foster Ave., Chicago
Ellis Dryer Co., 2444 N. Pulaski Ave., Chicago
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Isopropanol	Acetic Anhydride	"Carbowax" Compounds
Trimethylcyclohexanol	Ethylene Amines	•
Ethyl Ether	Morpholine	"Cellosize" Hydroxy- ethyl Cellulose WS
	Monoethanolamine	
Ethyl Acetate	Diethanolamine	Polyethylene Glycols
Isopropyl Acetate	Methyldiethanolamine	and 135 other synthetic organic chemicals
Acetoacetic Esters	Triisopropanolamine	

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Rubon Woodfinishing & Prods. Co., 500 W. 7th St.,
Kansas City, Mo.
P. R. Schuman Duster Co., 65 E. 53rd St., Brooklyn
Tu-way Products Co., 1423 Franklin St., Detroit
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Robinson Wagner Co., 110 E. 42nd St., N. Y. Robinson Wagner Co., 110 E. 42nd St., N. Y. Robinson Wagner Co., 126 W. 14th St., N. Y. F. E. Schundler & Co., Joliet, Ill.
L. Sonneborn Sons, 88 Lexington Ave., N. Y. Stanco Distributors, Inc., 216 W. 14th St., N. Y. A. E. Starkie Co., 5461 W. Division St., Chicago Van Dyk Co., Belleville, N. J.
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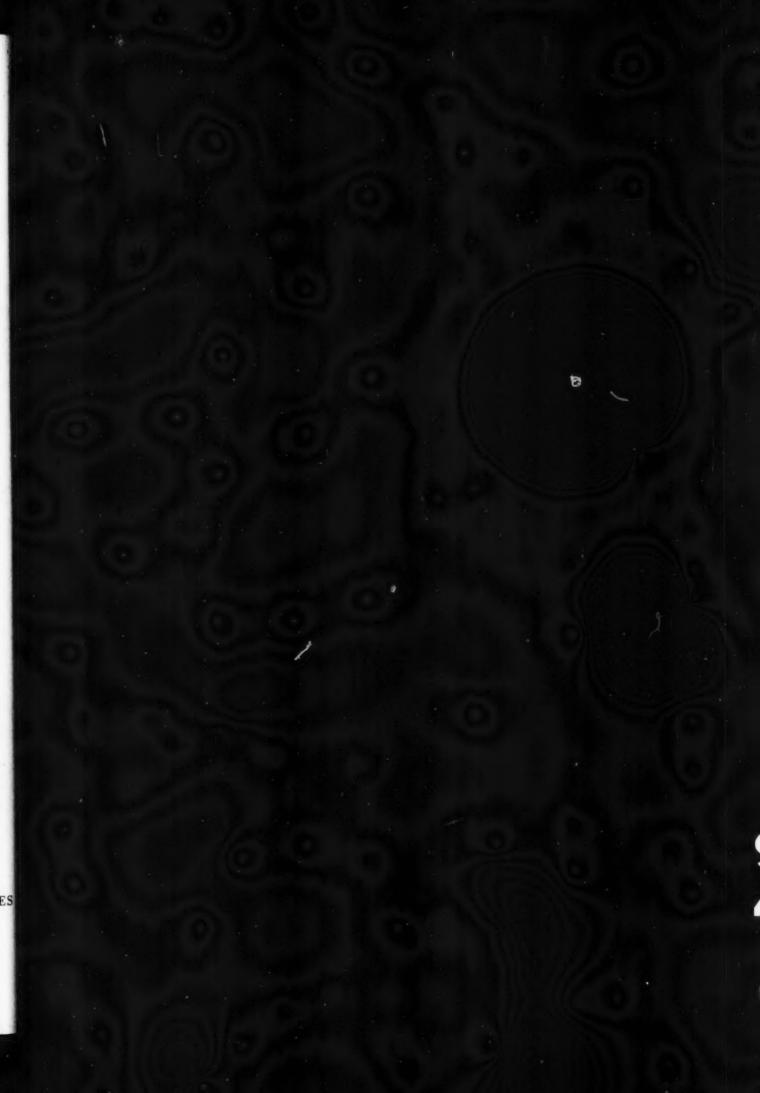
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Lancaster Iron Works, Lancaster, Pa.
Newman Tallow & Soap Machy. Co., 1051 W. 35th St.,
Chicago (Used)
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H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
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Stein Equipment Corp., 426 Broome St., N. Y. (Used)
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Wurster & Sanger, 5201 S. Kenwood Ave., Chicago
Zaremba Co., 560 Crosby Bldg., Buffalo, N. Y.

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Centflor Mfg. Co., 6 Varick St., N. Y.
Ph. Chaleyer, Inc., 160 E. 56th St., N. Y.
Antoine Chiris Co., Inc., 115 E. 23rd St., N. Y.
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Church St., N. Y.
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A. C. Drury & Co., 219 East North Water St., Chicago
Felton Chemical Co., 603 Johnson Ave., Brooklyn
Firmenich & Co., 135 5th Ave., N. Y.
Florasynth Laboratories, 1513 Olmstead Ave., N. Y.
Senj. French, Inc., 160—5th Ave., N. Y.
General Drug Co., 125 Barclay St., N. Y.
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Hijos de Francisco Navarro, 132 Nassau St., N. Y.
Neumann-Buslee & Wolfe, 224 W. Huron St., Chicago
New York Aromatics, 254 4th Ave., N. Y.
Norda Essential Oil & Chem. Co., 601 W. 26th St., N. Y.
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Orbis Products Corp., 215 Pearl St., N. Y.
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Tombarel Products Corp., 12 E. 22nd St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.
Van Dyk & Co., Belleville, N. J.
Albert Verley, Inc., 232 E. Ohio St., Chicago

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EUCALYPTUS OIL (see Essential Oils)

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(see also Brokers and Dealers)

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Darling & Co., 4201 So. Ashland Ave., Chicago
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S. Howes Co., Silver Creek, N. Y. (Bbls.)
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
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Sprout, Waldron & Co., Muncy, Pa.
Stein Equipment Corp.. 426 Broome St., N. Y. (Used)
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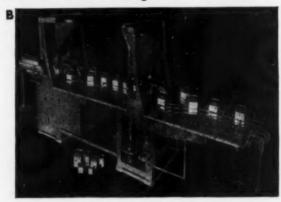
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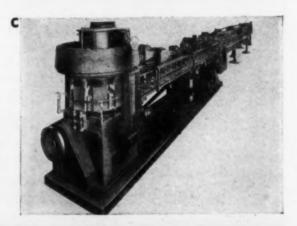


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Progressive Eng. Co., Torresdale, Pa.
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F. B. Redington Co., 112 S. Sangamon St., Chicago
Stein Equipment Corp., 426 Broome St., N. Y. (Used)
Sprout, Waldron & Co., Muncy, Pa.
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Filter Paper Co., 57 E. 24th St., Chicago
B. F. Gump Co., 431 S. Clinton St., Chicago
Wm. E. Hooper & Sons, Juniper & Cherry Sta.,
Philadelphia
Independent Filter Press Co., 189 Seventh St., Brooklyn
National Filter Cloth & Weaving Co., 220 E. 42nd St.,
N. Y.
Newark Wire Cloth Co., 223 Verona Ave., Newark, N. J.
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J. T. Perkins Co., 669 Kent Ave., Brooklyn
Wm. R. Perrin & Co., 349 W. 23rd St., Chicago
Scientific Filter Co., 12 Franklin Sq., N. Y.
T. Shriver & Co., Harrison, N. J.
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Sparkler Mfg. Co., 201 Lake St., Mundelein, Ill.

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Monsanto Chemical Co., 1724 South Second St., St.
Louis
Niacet Chemicals Corp., Niagara Falls, N. Y.
Price Fire & Water Proofing Co., Poughkeepsie, N. Y.
Protexol Corp., 32 Market St., Kenilworth, N. J.
Victor Chemical Works, 141 West Jackson Bldg., Chicago Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### FISH OILS

(see also Brokers and Dealers)

Atlantic Products Corp., Commercial Trust Bldg., Phila. Atlas Refinery, Lockwood St., Newark, N. J. Falk & Co., Pittsburgh Hooker Electrochemical Co., Niagara Falls, N. Y. Murray Oil Products Co., 21 West St., Ñ. Y. National Oil Products Co., Harrison, N. J. Pacific Vegetable Oil Co., 62 Townsend St., San Francisco J. H. Redding, Inc., 17 Battery Place, N. Y. Werner G. Smith Co., 2191 W. 110th St., Cleveland A. E. Starkie Co., 5461 W. Division St., Chicago Swan Finch Oil Corp., 30 Rockfeller Plaza, N. Y. Arthur C. Trask Co., 4103 S. La. Salle St., Chicago Welch, Holme & Clark Co., 563 Greenwich St. N. Y.

#### FISH OIL SOAPS

Crystal Soap & Chem. Co., 6300 State Rd., Phila.
Falk & Co., Pittsburgh 30, Pa.
James Good, Inc., 2116 E. Susquehanna Ave.. Phila.
Hockwald Chem. Co., 135 Mississippi St., San Francisco R. M. Hollingshead Corp., Camden, N. J.
National Oil Products Co., Harrison, N. J.
Newell Gutradt Co., 350 Fremont St., San Francisco North Coast Chem. & Soap Works, Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Theo. B. Robertson Prods. Co., 700 W. Division St.,
Chicago
Silmo Chemical Co., Vineland, N. J.
Werner G. Smith Co., 2191 W. 110th St., Cleveland

Thompson-Hayward Chem. Co., Kansas City, Mo. Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### FLAKE SOAPS (see CHIP SOAPS)

#### FLOATING SOAPS

Armour & Co., 1355 W. 31st St., Chicago
Beach Soap Co., Lawrence, Mass.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cudahy Packing Co., 221 N. La Salle St., Chicago
J. Eavenson & Sons, Camden, N. J.
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, Ohio
Iowa Soap Co., Burlington, Iowa
Lightfoot Schultz Co., 663 Fifth Ave., N. Y.
Procter & Gamble Co., Cincinnati
Geo. A. Schmidt & Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Chicago
M. Werk Co., Cincinnati, O.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

#### FLOOR FINISHES (Non-Wax)

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Boston Chemical Industries, 64 E. Brookline St., Boston
Candy & Co., 2515 W. 35th St., Chicago
Chemical Compounding Corp., 262 Huron St., Bklyn.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., Plymouth Bldg., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Continental Car-Na-Var Corp., Brazil, Ind.
Davies-Young Soap Co., Dayton, O.
Delta Chem. Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Empire Chemical Prods. Co., 10 Longworth St., Newark,
N. J.
Federal Varnish Co., 337 S. Peoria St., Chicago
Franklin Research Co., 5134 Lancaster Ave., Phila.
Fuld Bros., 702 S. Wolfe St., Baltimore
P. D. George Co., 5200 N. 2nd St., St. Louis
Higley Chemical Co., Dubuque, Iowa
Hockwald Chemical Co., 135 Mississippi St.,
San Francisco
Hysan Prods. Co., 58 E. Cullerton St., Chicago
La Maison Prods., Inc., 80 York St., Brooklyn
Lewis Soap & Chem. Co., Oakland, Calif.
Midland Labs., Dubuque, Iowa
National Oil Products Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wisc.
Peck's Products Co., St. Louis
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Shawmut Specialty Co., 313 Centre St., Boston
Solshine Mfg. Co., 412—2nd St., Fall River, Mass.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Twin City Shellac Co., 340 Flushing Ave., Brooklyn
Uncle Sam Chem. Co., 573 W. 131st St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Victory Chem. Co., 148 Fairmount Ave., Phila.
T. F. Washburn Co., 2244 Elston Ave., Chicago

#### FLOOR MACHINES

Adams Prods., Inc., 248 W. Fairfield Ave., St. Paul Amer. Floor Surfacing Mach. Co., Toledo, O. Continental Car-Na-Var Corp., Brazil, Ind. Fay Co., 279 Fifth Ave., N. Y. Finnell System, Inc., Elkhart, Ind. General Floorcraft Corp., 333 Sixth Ave., N. Y. Hild Floor Machine Co., 1313 W. Randolph St., Chicago Hockwald Chem. Co., 135 Mississippi St., San Francisco Kent Co., Rome, N. Y. S. C. Lawlor Co., 122 N. Aberdeen St., Chicago Lincoln-Schlueter Floor Machy. Co., 220 W. Grand Ave., Chicago Ponsell Floor Machine Co., 220 W. 19th St., N. Y.

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#### FLOOR SCRUB SOAPS (see also Potash Soaps)

American Soap & Washoline Co., Cohoes, N. Y.
Ampion Corp., 47-02—5th St., Long Island City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armour & Co., 1355 W. 31st St., Chicago
Baird & McGuire, Inc., of Mo., St. Louis
Banner Chem. Prods. Co., 60 Elm St., Newark, N. J.
Baum's Castorine Co., Rome, N. Y.
Boston Chemical Industries, 64 E. Brookline St., Boston
Bri-Test Prods. Corp., 810 E. 136th St., Bronx, N. Y.
Candy & Co., 2515 W. 35th St., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., Plymouth Bldg., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Continental Car-Na-Var Corp., Brazil, Ind.
Churchill Mfg. Co., Galesburg, Ill.
Cole Laboratories, 22-19 37th Ave., L. I. City, N. Y.
Davies-Young Soap Co., Dayton, O.
Delta Chem. Co., Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Empire Chem. Prods. Co., 12 Longworth Ave.,
Newark, N. J.

Franklin Research Co., 5134 Lancaster Ave., Phila. Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 Susquehanna Ave., Phila.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Harley Soap Co., Pierce & Orthodox Sts., Philadelphia.
Higley Chemical Co., Dubuque, Iowa

Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Kranich Soap So., 60 Richards St., Brooklyn
Lewis Soap & Chem. Co., 2210 San Pablo Ave.
Oakland, Calif.
Los Angeles Soap Co., 617 E. 1st St., Los Angeles
Midland Labs., Dubuque, Iowa
National Oil Products Co., Harrison, N. J.
Peck's Prods. Co, 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Puritan Chem. Co., Atlanta, Ga.
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co., 700 W. Division St.,
Chicago
Rochester Germicide Co., Rochester, N. Y.
Sanitary Soap Co., 104 Railroad Av. Paterson, N. J.
Solshine Mfg. Co., 412—2nd St., Fall River, Mass.
S. S. Stafford, Inc., 603 Washington St., N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
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Texol Chemical Works, 3 Winter St., Worcester, Mass. Thompson-Hayward Chem. Co., Kansas City, Mo. Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago J. A Tumbler Labs., 423 Hanover St., Baltimore Twi-Laq Chemical Co., N. Portland Ave., Bklyn. Uncle Sam Chem. Co., 573 W. 131st St., N. Y. U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago Universal Chem. Corp., Akron, O. Western Chem. & Mfg. Co., 4032 Wentworth Ave., Chicago

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Cary Mfg. Co., 4917 E. Michigan St., Indianapolis
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Harley Soap Co., Pierce & Orthodox Sts., Phila.
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Peck's Prods., 5240 N. 2nd St., St. Louis
Perrow Chemical Co., Hunt, Vs. Puritan Chem. Co., Atlanta, Ga. R. G. A. Leboratories, 145 W. 45th St., N. Y. Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago Sanitary Soap Co., 104 Railroad Ave., Paterson, N. J. Shawmut Specialty Co., 313 Centre St., Boston Solshine Mfg. Co., 412—2nd St., Fall River, Mass. L. Sonneborn Sons, 88 Lexington Ave., N. Y S. S. Stafford, Inc., 603 Washington St., N. Y. Standard Oil Co. (Calif.), 225 Bush St., San Francisco Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago H. F. Staples Co., Medford, Mass. Superior Soap Corp., 121 Nostrand Ave., Brooklyn Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago J. A. Tumbler Labs., 423 Hanover St., Baltimore Twi-Laq Chemical Co., 25 N. Portland Ave., Brooklyn Twin City Shellac Co., 340 Flushing Ave., Brooklyn Uncle Sam Chem. Co., 573 W. 131st St., N. Y. U. S. Sanitary Specialties Corp., 435 Western Ave., Chicago Universal Chem. Corp., Akron, O. Victory Chem. Co., 148 Fairmount Ave., Phila. T. F. Washburn Co., 2244 Elston Ave., Chicago Wilco Co., 6800 McKinley Ave., Los Angeles Windsor Wax Co., Inc., 611 Newark St., Hoboken, N. J.

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Koppers Co., Koppers Bldg., Pittsburgh
National Aniline & Chemical Div., 40 Rector St., N. Y.
Newport Industries, Inc., 230 Park Ave., N. Y.
Pittsburgh Coal Carbonization Co., Oliver Bldg., Phila.
Reilly Tar & Chemical Corp., Indianapolis, Ind.
Republic Chemical Co., 94 Beekman St., N. Y.
Sherwood Refining Co., Englewood, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y. C.
Tennessee Eastman Corp., Kingsport, Tenn.
Woburn Chemical Corp., Harrison, N. J.

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(see also Dealers)

Aluminum Co. of America, Gulf Bldg., Pittsburgh American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y. American Fluoride Corp., 151 W. 19th St., N. Y. Blockson Chemical Co., Joliet, Ill. Foote Mineral Co., 1609 Summer St., Philadelphia General Chemical Co., 40 Rector St., N. Y. Harshaw Chemical Co., 1945 97th St., Cleveland Innis, Speiden & Co., 117 Liberty St., N. Y. Lindsay Light & Chem. Co., West Chicago, Ill. Merck & Co., Rahway, N. J. Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila. Pfaltz & Bauer, 350 Fifth Ave., N. Y. H. H. Rosenthal Co., 25 E. 26th St., N. Y. Henry Sundheimer, Inc., 103 Park Ave., N. Y. Jos. Turner & Co., Ridgefield, N. J.

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Delta Chem. & Iron Co., Wells, Mich.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Wm. S. Gray Co., 342 Madison Ave., N. Y.
Hercules Powder Co., Wilmington, Del.
Heyden Chem. Co., 50 Union Sq., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mallinckrodt Chemical Work, St. Louis, Mo.
Merck & Co., Rahway, N. J.
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Commercial Solvents Corp., Terre Haute, Ind.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Kay-Fries Chemicals, Inc., 180 Madison Ave., N. Y.
Mechling Bros. Chemical Co., Camden, N. J.
Rohm & Haas Co., Inc., 222 W. Washington Sq.,
Philadelphia
Stanffer Chem. Co., 420 Levington Ave. N. Y. Stauffer Chem. Co., 420 Lexington Ave., N. Y. U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y. Wyandotte Chem. Corp., Wyandotte, Mich.

Davis Emergency Equip. Co., 43 Halleck St., Newark, New Jersey Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa.

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GERANIOL (see Aromatic Chemicals)

GERANIUM OIL (see Essential Oils)

GERANYL ACETATE (see Aromatic Chemicals)

GLASS BOTTLES and JARS (see Bottles)

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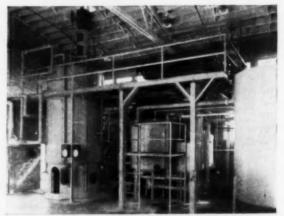
WURSTER & SANGER Oil Hardening Plants are built for partially or completely hardening vegetable oils, fish oils, lard and tallow, for

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Our plants are simple, efficient and economical in operation and give uniform products of highest quality.



Wurster & Sanger Continuous Glycerine Distillation Plant



Wurster & Sanger Hydrogenation Plant

#### W & S CATALYST REDUCER

The operation of the WURSTER & SANGER Wet Catalyst Reducer is completely automatic, resulting in a uniform catalyst of the greatest activity, longest life and less susceptible to poisons. The hazards encountered in dry reduction methods are eliminated. Operating costs are extremely low.

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WURSTER & SANGER Fatty Acid Distillation Plants, Continuous and Batch Type, are of improved design and construction throughout. Operation is under high vacuum and at low temperature, producing a superior quality of distilled fatty acids with high yields

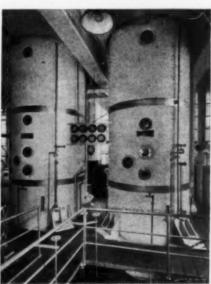
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#### **ESTIMATES** AND **OUOTATIONS**

We are glad to furnish information and quotations covering any equipment from the smallest part of an installation to complete plants for the manufacture of products from fats and oils. Your inquiries

have prompt considera-



Wurster & Sanger Double Effect Soap Lye Glycerine Evaporator

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M. & H. Laboratories, 2703-5 Archer Ave., Chicago
National Oil Products Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wisc.
Puritan Chem. Co., Atlanta
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Slotch Prods. Corp., 2710 Detroit Ave., Cleveland 700 W. Division St., Chicago Skotch Prods. Corp., 2710 Detroit Ave., Cleveland Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass. John Sunshine Chem. Co., 604 W. Lake St., Chicago Transmotive Labs., 2550 S. Michigan Ave., Chicago Uncle Sam Chemical Co., 573 W. 131st St., St., N. Y. C. U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago Wilco Co., 6800 McKinley Ave., Los Angeles

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Los Angeles Soap Co., Los Angeles, Calif.
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Leo Pasternak, 110 William St., N. Y. (Brokers)
Procter & Gamble Co., Cincinnati Leo Pasternak, 110 William St., N. Y. (Brokers)
Procter & Gamble Co., Cincinnati
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
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GREASES, LUBRICATING (see Petroleum Bases)

GREEN SOAP (see Potash Soap)

1945 BLUE BOOK

# Sanitary Products

their manufacture, testing and use

by LEONARD SCHWARCZ

\$5.00 per copy

the first and only book ever published dealing with insecticides, disinfectants, floor waxes, deodorizing blocks, moth preparations, and allied sanitary specialties. Typical formulations are discussed and considerable information on most effective and economical use of these products is included. Helpful hints for determining comparative quality of different products are also supplied. Labeling problems get particular attention, the workings of the various laws governing the industry being explained and labeling requirements outlined in a special chapter.

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The Insect Problem Pyrethrum Insecticides Rotenone Materials Synthetic Insecticides Activators Roach Control Bedbug Liquids Livestock Sprays Sprayers Moth Preparations Deodorant and Urinal Blocks Labeling and Packaging Appendix

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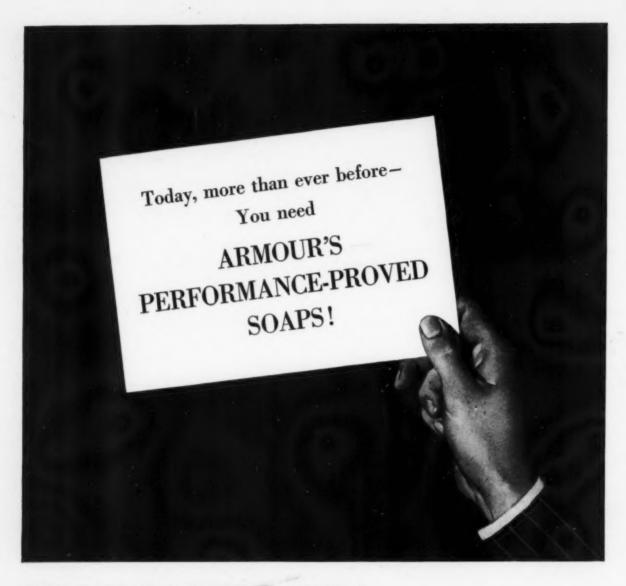
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Skotch Prods. Corp., 2710 Detroit Ave., Cleveland
John T. Stanley Co., 642 W. 30th St., N. Y.
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Swift & Co., Chicago
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
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(see also Cans, Fibre)

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Edelman Co., 6249 S. St. Lawrence Ave., Chicago
Elkay Products Corp., 323 W. 16th St., N. Y.
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Garnet Chem. Corp., 911 N. Lumber St., Allentown, Pa.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St.,
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National Sanitary Chem. Co., Baltimore, Md.
Palmer Products. Inc., Waukesha, Wisc.
Theo. B. Robertson Prods. Co.,
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Rochester Germicide Co., 16 Downing Pl., Rochester
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J. A. Tumbler Labs., 423 Hanover St., Baltimore
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Chicago
Victory Chem. Co., 148 Fairmount Ave., Philadelphia
Vliet & Co., 638 Monroe St., Brooklyn
Robert C. White Co., Chestnut Hill, Phila.
Wilco Co., 6800 McKinley Ave., Los Angeles
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Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati, O.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Fels & Co., Philadelphia
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, O.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Long Island Soap Co., Meeker Ave. & Bridgewater St.,
Brooklyn Brooklyn

Los Angeles Soap Co., Los Angeles, Calif.

Manhattan Soap Co., Bristol, Pa.

Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.

National Soap Co., 357 S. 25th St., Tacoma, Wash.

Newell Gutradt Co., 350 Fremont St., San Francisco, Cal.

Peck's Prods. Co., 5240 N. 2nd St., St. Louis

Procter & Gamble Co., Cincinnati

North Coast Chem. & Soap Wks., Seattle, Wash.

John T. Stanley Co., 642 W. 30th St., N. Y.

Swift & Co., Union Stock Yards, Chicago

Vliet Soap Co., 638 Monroe St., Brooklyn, N. Y.

Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Miss.

M. Werk Co., St. Bernard, Cincinnati

Allen B. Wrisley Co., 6801 W. 65th St., Chicago, Ill.

Chas. W. Young & Co., 1247 N. 26th St., Phila. Brooklyn

### LAUNDRY SOAP, CHIP

American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago
Beach Soap Co., Lawrence, Mass.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Du Bois Soap Co., Cincinnati, O.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Fels & Co., Philadelphia
Harris Soap Co., Buffalo, N. Y.
Haskins Bros. Co., Omaha
Hewitt Soap Co., Dayton, Ohio
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Long Island Soap Co., Meeker Ave. & Bridgewater St.,
Brooklyn Brooklyn

Los Angeles Soap Co., Los Angeles, Calif.

Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.

Nat'l Milling & Chem. Co., Manayunk, Phila.

National Oil Products Co., Harrison, N. J.

National Soap Co., 357 South 25th St., Tacoma, Wash.

North Coast Soap & Chem. Wks., Seattle, Wash.

Peck's Prods. Co., 5240 N. 2nd St., St. Louis

Procter & Gamble Co., Cincinnati

John T. Stanley Co., 642 W. 30th St., N. Y.

Swift & Co., Union Stock Yards, Chicago

Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.

M. Werk Co.; St. Bernard, Cincinnati

Allen B. Wrisley Co., 6801 W. 65th St., Chicago, Ill.

Chas. W. Young & Co., 1247 N. 26th St., Phila. Brooklyn

### LAUNDRY SOAP, POWD, AND GRAN.

American Soap Powder Wks., 100 Van Dyke St., Brooklyn, N. Y. American Soap & Washoline Co., Cohoes, N. Y.

Armour Soap Wks., 1355 W. 31st St., Chicage
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Beach Soap Co., Lawrence, Mass.
Chemical Mfg. & Dist. Co., Easton, Pa.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati, O.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, Ohio
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Los Angeles Soap Co., Los Angeles, Calif.
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
Napthole, Inc., 15 E. 26th St., N. Y.
Nat'l Milling & Chem. Co., Manayunk, Phila.
National Oil Products Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
John T. Stanley Co., 642 W. 30th St., N. Y.
Stevens Soap Corp., 202 Sullivan St., Brooklyn
Swift & Co., Union Stock Yards, Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 W. 65th St., Chicago, Ill.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

### LAUNDRY SODA, (see Soda)

### LAUNDRY SOURS (Fluoride, etc.)

Aluminum Co. of America, Gulf Bldg., Pittsburgh American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y. American Fluoride Corp., 151 W. 19th St., N. Y. Blockson Chemical Co., Joliet, Ill. Chemical Mfg. & Dist. Co., Easton, Pa. Diamond Alkali Co., 535 Smithfield Ave., Pittsgurgh, Pa. General Chem. Co., 40 Rector St., N. Y. Harshaw Chemical Co., 1945 E. 97th St., Cleveland Hummel Chem. Co., 90 West St., N. Y. Innis, Speiden & Co., 117 Liberty St., N. Y. H. Kohnstamm & Co., 91 Park Pl., N. Y. Peck's Prods. Co., 5240 N. 2nd St., St. Louis Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila. Port Huron Detergent Co., Port Huron, Mich. H. H. Rosenthal Co., 25 E. 26th St., N. Y. Standard Chem. Co., Columbus, O. John T. Stanley Co., 642 W. 30th St., N. Y. C. Henry Sundheimer, Inc., 103 Park Ave., N. Y. Thompson-Hayward Chemical Co., Kansas City, Mo. Victor Chemical Wks., 141 W. Jackson Blvd., Chicago Weich Holme & Clark, Inc., 563 Greenwich St., N. Y. Chas. W. Young & Co., 1247 N. 26th St., Phila. American Fluoride Corp., 151 W. 19th St., N. Y.

### LAVENDER OIL (see Essential Oils)

### LAURIC ACID (see also Fatty Acid)

Armour & Co., 1355 W. 31st St., Chicago E. F. Drew & Co., Wecoline Div., Boonton, N. .J Woburn Chemical Corp., Harrison, N. J.

### LAURYL ALCOHOL

E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del. Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y. C. Michel Export Co., 95 Broad St., N. Y. Robinson Wagner Co., 110 E. 42nd St., N. Y.

### LEAD ARSENATE

Amer. Agricultural Chem. Co., 50 Church St., N. Y. American Cyanamid & Chem. Co., 30 Rockefeller Plasa, California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
Chipman Chem. Co., Bound Brook, N. J.
Dow Chemical Co., Midland, Mich.
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LEMONGRASS Oil (see Essential Oils)

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E. I. Du Pont de Nemours, Wilmington, Del.
Hoosac Valley Lime Co., Adams, Mass.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Lehigh Lime Co., 111 W. Washington St., Chicago National Gypsum Co., 192 Delaware Ave., Buffalo, N. Y.
Rockland-Rockport Lime Co., Rockland, Maine William H. Scheel, Inc., 38 Franklin St., Brooklyn
U. S. Lime Prods. Corp., 85 Second St., San Francisco Whiterock Quarries, Inc., Bellefonte, Pa.
Whittaker, Clark & Daniels, Inc., 260 Bway., N. Y.
Witco Chemical Co., 295 Madison Ave., N. Y.

#### LIME SULFUR

Allen Co., Pittstown, N. J.
California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
Chipman Chemical Co., Bound Brook, N. J.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Sherwin-Williams Co., Cleveland, O.
Shores Co., Cedar Rapids, Iowa
Taylor Chem. Wks., Aberdeen, N. C.

### LINALOE OIL (see Essential Oils)

LINALOOL (see Aromatic Chemicals)

LINALYL ACETATE (see Aromatic Chemicals)

LINERS (see Bag Liners)

### LINING MACHINERY (Cartons)

Pneumatic Scale Corp., North Quincy, Mass. F. B. Redington Co., 112 S. Sangamon St., Chicago

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(see also Brokers and Dealers)

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Bisbee Linseed Co., Philadelphia
William O. Goodrich Co., Milwaukee, Wis.
Spencer Kellogg & Sons, Buffalo, N. Y.
Kelloggs & Miller, Amsterdam, N. Y.
Minnesota Linseed Oil Co., Minneapolis, Minn.
Pacific Vegetable Oil Corp., 62 Townsend St.,
San Francisco
J. H. Redding, Inc., 17 Battery Place, N. Y.
A. E. Starkie Co., 5461 W. Division St., Chicago
Welch Holme & Clark Co., 563 Greenwich St., N. Y.

### LINSEED OIL SOAP (see Potash Soaps)

LIQUID SOAP AND BASE (see Potash Soap)

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Emsco Equipment Co., 39 Hyatt Ave., Newark, N. J.
J. L. Ferguson Co., Joliet, Ill.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y.
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 265 46th St., Brooklyn
J. M. Lehmann Co., Lyndhurst, N. J.
Machinery & Equipment Co., 59 E. 4th St., N. Y.
Newman Tallow & Soap Machy. Co., 1051 W. 35th St.,
Chicago
Prater Pulverizing Co., 1825 S. 55th Ave., Chicago
Stein Equipment Corp., 426 Broome St., N. Y.
Weigh Right Automatic Scale Co., 404 Grant Ave.,
Joliet, Ill.

### MAGNESIUM CARBONATE

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del. Hercules Powder Co., 961 Market St., Wilmington, Del. Innis-Speiden & Co., 117 Liberty St., N. Y.
F. E. Schundler & Co., Joliet, Ill.
Whittaker, Clark & Daniels, Inc., 260 Bway,, N. Y.
Witco Chemical Co., 295 Madison Ave., N. Y.

#### MAGNESIUM OXIDE

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y. Dow Chemical Co., Midland, Mich. E. I. Du Pont de Nemours & Co., Wilmington, Del. Harshaw Chemical Co., 1945 E. 97th St., Cleveland Innis-Speiden & Co., 117 Liberty St., N. Y. E. E. Schundler & Co., Joliet, Ill. Whittaker, Clark & Daniels, Inc., 260 Bway., N. Y. Witco Chemical Co., 295 Madison Ave., N. Y.

### MAGNESIUM STEARATE (see Stearates)

MAHOGANY SULFONATES (see Naphthenic Acids)

### MAHOGANY SOAP

Armour Soap Wks., 1355 W. 31st St., Chicago Colgate-Palmolive-Peet Co., Jersey City, N. J. Los Angeles Soap Co., Los Angeles, Calif. John T. Stanley Co., 642 W. 30th St., N. Y.

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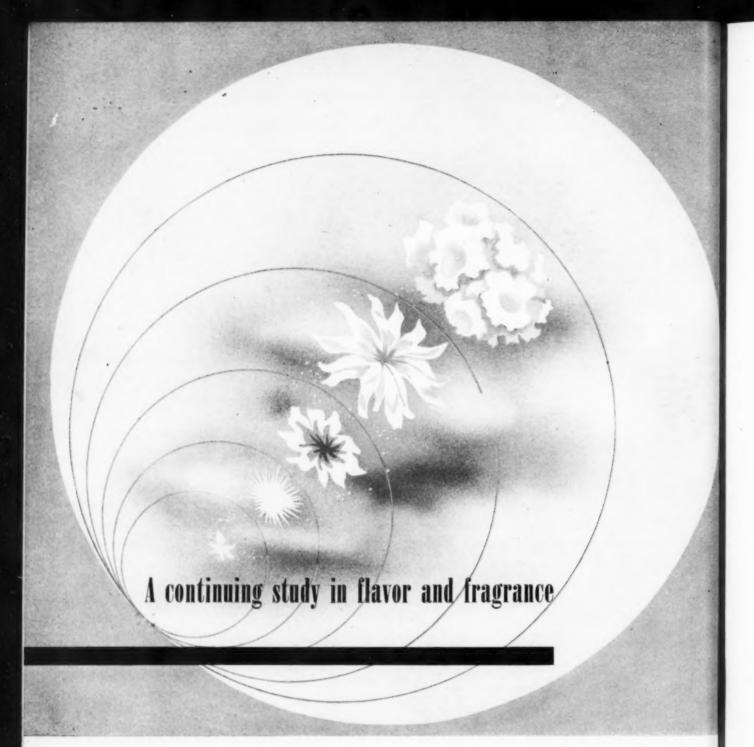
Gillespie-Rogers-Pyatt Co., 80 John St., N. Y. O. G. Innes Corp., 82 Wall St., N. Y. Wm. H. Scheel, Inc., 38 Franklin Street, Brooklyn U. S. Industrial Chemicals, Inc., Lincoln Bldg., N. Y.

### MARINE SOAPS (see Salt Water Soaps)

MECHANIC'S HAND PASTE (see Hand Soap)

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A. Maschmeijer, Jr., Inc., 45 W. 16th St., N. Y.
McKesson & Robbins, Inc., 155 E. 42nd St., N. Y.
Norda Essential Oil & Chem. Co., 601 W. 26th St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
S. B. Penick & Co., 50 Church St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Schimmel & Co., 601 W. 26th St., N. Y.
Scherka Chemical Co., 86 Orange St., Bloomfield, N. J.
Standard Synthetics, Inc., 119 W. 25th St., N. Y.
Tombarel Prods., 12 E. 22nd St., N. Y.

### MERCURY BICHLORIDE (Corrosive Sublimate)

General Chemical Co., 40 Rector St., N. Y. Heyden Chemical Corp., 50 Union Sq., N. Y. Mallinckrodt Chemical Works, St. Louis Merck & Co., Rahway, N. J. New York Quinine & Chem. Wks., N. 11th & Berry Sts., Brooklyn Chas. Pfizer & Co., 81 Maiden Lane, N. Y. Wood Ridge Mfg. Co., Wood Ridge, N. J.

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METAL POLISH (see Polish)

METALLIC SOAPS (see Stearates)

METERS (see Instruments)

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### METHYL ANTHRANILATE

(see also Aromatic Chemicals)

Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours, Wilmington, Del.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Florasynth Labs., Olmstead & Starling Aves., N. Y.
A. Maschmeijer, Jr., Inc., 45 W. 16th St., N. Y.

### METHYL BROMIDE

Dow Chemical Co., Midland, Mich. Westvaco Chlorine Prods. Corp., 405 Lexington Av., N. Y.

### METHYL CELLULOSE

Dow Chemical Co., Midland, Mich. General Dyestuffs Corp., 435 Hudson St., N. Y. Hercules Powder Co., Wilmington, Del.

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### METHYL SALICYLATE (Artificial Wintergreen)

(see also Aromatic Chemicals)

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MILLS, SOAP POWDER (see Soap Machinery & Grinding Machinery)

MINERAL OIL, WHITE (see White Mineral Oil)

MINERAL SOAP (see Petrolatum)

### MIRBANE OIL (Nitrobenzine)

(see also Essential Oils)

Calco Chemical Co., Bound Brook, N. J.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
National Aniline & Chemical Div., 40 Rector St., N. Y.
Naugatuck Aromatics, Inc., 254 Fourth Ave., N. Y.

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Rochester, N. Y.
Newman Tallow & Soap Mach. Co., 1051 W. 35th St.,
Chicago (Used)
Patterson Fdy. & Mch. Co., E. Liverpool, O.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy. Co., York, Pa.
Stein Equipment Corp., 426 Broome St., N. Y. (Used)

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### MIXING MACHINERY (Dry Products) (Contd.)

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Robinson Mfg. Co., Muncy, Pa.
Chas Ross & Son Co., 150 Classon Ave., Brooklyn
Sprout Waldron & Co., Muncy, Pa.
Stein Equipment Corp., 426 Broome St., N. Y. (Used)
Stephens-Adamson Mfg. Co., Aurora, Ill.
F. J. Stokes Machine Co., Philadelphia, Pa.
Struthers-Wells Corp., Warren, Pa.
Aurelio Tanzi Engineering Co., 430 Jefferson St., Bklyn.

### MIXING MACHINERY (General)

Alsop Engineering Corp., 100 High St., Milldale, Conn. Baker-Perkins Co., 250 Park Ave., N. Y. Beach-Russ Co., 50 Church St., N. Y. Arthur Colton Co, Detroit Consolidated Prods. Co., 15 Park Row, N. Y. (Used) J. H. Day Co., 1144 Harrison Ave., Cincinnati Eastern Engineering Co., 45 Fox St., New Haven Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y. Filter Paper Co., 57 E. 24th St., Chicago First Machy. Corp., 819 E. 9th St., N. Y. (Used) B. F. Gump Co., 431 S. Clinton St., Chicago Houchin Machinery Co., Hawthorne, N. J. S. Howes Co., Inc., Silver Creek, N. Y. Huber Machine Co., 259—46th St., Brooklyn Kent Machine Co., 37 Gold St., Brooklyn Lancaster Iron Works, Lancaster, Pa. J. M. Lehmann Co., Lyndhurst, N. J. Littleford Bros., 443 E Pearl St., Cincinnati Mixing Equipment Co., 1067 Garson Ave., Rochester, N. Y. Newman Tallow & Soap Mach. Co., 1051 W. 35th St., Chicago (Used)

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Chas. Ross & Son Co., 150 Classon Ave., Brooklyn Sowers Mfg. Co., 1296 Niagara St., Buffalo, N. Y.
Sprout Waldron & Co., Muncy, Pa.
Stein Equipment Corp., 426 Broome St., N. Y. (Used) Stephens-Adamson Mfg. Co., Aurora, Ill.
F. J. Stokes Mach. Co., Philadelphia, Pa.
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Turbo Mixer Corp., 247 Park Ave., N. Y.
Waterville Foundry & Machine Co., Waterville, N. Y.

### MONEL METAL EQUIPMENT

Eastern Engineering Co., New Haven, Conn. (Pumps) Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y. Houchin Machinery Co., Hawthorne, N. J. International Nickel Co., 67 Wall St., N. Y. Alan Porter Lee, Inc., 136 Liberty St., N. Y. Littleford Bros., 453 E. Pea'l St., Cincinnati Patterson-Kelley Co., East Stroudsburg, Pa. Pfaudler Co., 89 East St., Rochester, N. Y. H. K. Porter Co., 49th & Harrison Sts., Pittsburgh Sprout Waldron & Co., Muncy, Pa. F. J. Stokes Machine Co., Phila. Wurster & Sanger, Inc., 5201 Kenwood Ave., Chicago

### MONTAN WAX (see Waxes)

### MOP HANDLES

Algoma Mfg. Co., Green Bay, Wis.

Amer. Standa: d Mfg. Co., 2509 S. Green St., Chicago Stanley H. Coffin, 12 Pearl St., Boston Continental Car-Na-Var Corp., Brazil, Ind. Eagle Woodenware Mfg. Co., Hamilton, O. Economy Mop Wringer Co., 1944 W. 21st St., Chicago Erie Mop & Wringer Co., East Rochester, N. Y. Howard Dustless Duster Co. Boston W. E. Kautenberg Co. Freenort III W. E. Kautenberg Co., Freeport, Ill. Massasoit Mfg. Co., 72 Park Pl., N. Y. Rubon Wood Finishing & Prods. Co., 500 W. 7th St., Kansas City, Mo.

Silver-Chamberlin Co., Clayton, N. Y. White Mop Wringer Co., Fultonville, N. Y.

### MOP WRINGERS AND PAILS

Stanley H. Coffin, 12 Pearl St., Boston Stanley H. Coffin, 12 Pearl St., Boston Colson Mfg. Co., Elyria, O. Dobbins Mfg. Co., Elkhart, Ind. Eagle Woodenware Mfg. Co., Hamilton, Ohio Economy Mop Wringer Co., 1944 W. 21st St., Chicago Geuder, Paesche & Frey, Milwaukee, Wis. Illinois Duster Co., 1944 Webster Ave, Chicago S. C. Lawlor Co., 192 N. Aberdeen St., Chicago Muskegon Sanitary Supply Co., Muskegon Heights, Mich. Palmer Products, Inc., Waukesha, Wisc. Sanitary Mfg. Co., 926 Ft. Wayne Ave., Indianapolis Sweet Mop Co., 1913 Fremont Ave., South Pasadena, Cal. Tarbox Lever Corp., 61 Chandler St., Buffalo White Mop Wringer Co., Fultonville, N. Y.

#### MOPPING TANKS AND TRUCKS

Eagle Woodenware Mfg. Co., Hamilton, O. Economy Mop Wringer Co., 1944 W. 21st St., Chicago S. C. Lawlor Co., 122 N. Aberdeen St., Chicago Palmer Products, Inc., Waukesha, Wisc. White Mop Wringer Co., Fultonville, N. Y.

Alabama Broom & Mattress Co., Huntsville, Ala. Algoma Mfg. Co., Green Bay, Wis.

Amer. Standard Mfg. Co., 2509 S. Green St., Chicago Amer. Textile Prods. Co., 5606 Euclid Ave., Cleveland Burdett-Rose Mfg. Co., 6100 Independence Rd., Kansas Burdett-Rose Mfg. Co., 6100 Independence Rd., Kansas City, Mo.
California Cotton Mills Co., Oakland, Calif.
Chattanooga Broom & Mop Co., Chattanooga, Tenn.
Clark Bros. Mfg. Co., 34 N. Front St., Phila.
Stanley H. Coffin, 12 Pearl St., Boston, Mass.
Continental Car-Na-Var Corp., Brazil, Ind.
Eagle Woodenware Mfg. Co., Hamilton, O.
Howard Dustless Duster Co., Boston, Mass.
Illinois Duster & Brush Co., 1944 Webster Ave., Chicago W. E. Kautenberg Co., P. O. Box 255, Freeport, Ill.
Klenzall Mfg. Co., Atlanta, Ga.
Palmer Products, Inc., Waukesha, Wisc.
Pioneer Mfg Co., Cleveland, Ohio
Rubon Woodfinishing & Prod. Co., 500 W. 7th St.,
Kansas City, Mo.
Sanitary Mfg. Co., 926 Ft. Wayne Ave., Indianapolis
Schaefer-Wetcher Co., 445 W. Jefferson Ave., Detroit
Silver-Chamberlain Co., Clayton, N. J.
T. C. Smyth Mfg. Co., Union City, Ind.
Sweet Mop Co., 1913 Fremont Ave., South Pasadena, Cal.
Tate Mfg. Co., Boston, Mass.
M. J. Toohey & Co., Fall River, Mass.
Tuscaloosa Mills, Tuscaloosa, Ala.
Tu-Way Products Co., 1423 Franklin St., Detroit
Yocma Mills, Water Valley, Miss. City, Mo.

### MOSQUITO LARVICIDES

Ampion Corp., 4-88—47th Ave., L. I. City, N. Y. Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire of Mo., St. Louis
Cary Mfg. Co., 4917 E. Michigan St., Indianapolis
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Chipman Chemical Co., Bound Brook, N. J.
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Davies-Young Soap Co., Dayton, O.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Geigy Co., 89 Barclay St., N. Y.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
James Huggins & Son, 239 Medford St., Malden, Mass.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Koppers Co., White Tar Div., Kearny, N. J.
McCormick & Co., Inc., Baltimore, Md.
Merck & Co., Rahway, N. J.
Palmer Products, Inc., Waukesha, Wisc.

### MOSQUITO LARVAECIDES (Contd.)

Peck's Products Co., St. Louis
Shell Oil Co., 50 W. 50th St., N Y.
Texol Chemical Works, 3 Winter St., Worcester, Mass.
Uncle Sam Chemical Co., 573 W. 131st St., St., N. Y. C.
Thompson-Hayward Chemical Co., Kansas City, Mo.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Velsicol Corp, 120 E. Pearson St., Chicago
York Chem. Co., 424 W. 18th St., N. Y.

### MOTH BAGS

Clopay Co., Cincinnati Kennedy Car Liner Co., Indianapolis LeMontre Co., Cincinnati Rosette Co., 200 Tillary St., Brooklyn

#### MOTH PROOFING COMPOUNDS

American Cyanamid & Chemicals Corp.,
30 Rockefeller Plaza, N. Y.
Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago
Barrett Co., 40 Rector St., N. Y.
Baird & McGuire, Inc., Hoibrook, Mass.
Baird & McGuire, Inc., of Mo., St. Louis
Brileo Labs., 947—61st St., Brooklyn
Cenol Co., 4250 N. Crawford Ave., Chicago
Chemical Supply Co., Plymouth Bldg., Cleveland
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Edelman Co., 6429 S. St. Lawrence Ave., Chicago
Fuld Bros., 702 S. Wolfe St., Baltimore
Geigy Co., 89 Barclay St., N. Y.
General Dyestuffs Corp., 435 Hudson St., N. Y.
R. W. Greeff & Co., 10 Rockefeller Plaza, N. Y.
Harrison Oil Co., 5110 N. 35th St., Milwaukee
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Arnold Hoffman Co., Providence, R. I.
R. M. Hollingshead Corp., Camden, N. J.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Koppers Co., White Tar Div., Kearney, N. J.
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland,
Calif.
Maywood Pest Exterminators. Maywood, Ill. Maywood Pest Exterminators, Maywood, Ill.
Merck & Co., Rahway, N. J.
Midway Chemical Co., 5235 W. 65th St., Chicago
Peck's Products Co., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Per-Mo Mothproof Co., 3729 Virginia Ave.,
Kanga City, Mo. Kansas City, Mo.
Reilly Tar & Chemical Corp., Indianapolis
Solvay Sales Corp., 40 Rector St., New York
Thompson-Hayward Chemical Co., 2915 S. W. Blvd.,
Kansas City, Mo.
Trojan Products & Mfg. Co., 3130 S. Wabash Ave., Chicago Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Joseph Turner Co., Ridgefield, N J.
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Whitmire Research Corp., 339 S. Vandeventer, St. Louis

MOTH SPRAYS (see Household Insecticides, Liquid)

### MOTTLED SOAPS

Hewitt Soap Co., Dayton, O.
Lightfoot Schultz Co., Hoboken, N. J.
Los Angeles Soap Co., Los Angeles
National Soap Co., P. O. Box 1613, Tacoma, Wash.
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Chicago
M. Werk Co., Cincinnati, O. M. Werk Co., Cincinnati, O. Allen B. Wrisley Co., 6801 W. 65th St., Chicago

MOUSE SEEDS (see Poisoned Seeds)

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AS PER-MO HAS NO ODOR AND WILL NOT SPOT OR STAIN, IT APPEALS TO THE PUBLIC DUE TO THE FACT THAT IT CAUSES NO INCONVENIENCE WHILE MOTH-PROOFING FURNITURE, RUGS OR CLOTHING IN THE HOME, APARTMENT OR HOTEL ROOM,



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MYRISTIC ACID (see also Fatty Acids)

Woburn Chemical Corp., Harrison, N. J.

NAPHTHA (see Solvent Naphtha)

#### NAPHTHALENE

American-British Chem. Supplies, 180 Madison Ave., Barrett Co., 40 Rector St., N. Y.
S. H. Bell Co., 1407 Gulf Bldg., Pittsbu: gh
Dominion Tar & Chem. Co., Ltd., Montreal
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
William E. Jordan & Bro., 2590 Atlantic Ave., Brooklyn
Koppers Co., White Tar Div., Kearny, N. J.
Neville Co., Pittsburgh
Reilly Tar & Chem. Corp., Indianapolis
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Standard Naphthalene Prods. Co., S. Kearny, N. J.
Velsicol Corp., 120 E. Pearson St., Chicago

### NAPHTHALENE SULFONATES

E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. General Dyestuff's Corp., 435 Hudson St., N. Y. National Aniline & Chem. Div., 40 Rector St., N. Y. National Oil Products Co., Harrison, N. J. Pennsylvania Refining Co., Butler, Pa., Richard Sales Corp., Jersey City, N. J. L. Sonneborn Sons, 88 Lexington Ave., N. Y.

NAPHTHENATES (see Copper Naphthenate, Zinc Naphthenate)

### NAPHTHENIC ACIDS (and Sulfonic Sludges)

Advance Solvents & Chem. Co., 245—5th Ave., N. Y. Atlantic Refining Co., 260 Broad St., Philadelphia General Petroleum Corp., 108 W. 2nd St., Los Angeles Hummel Chem. Co., 90 West St., N. Y. Nuodex Prods. Co., Elizabeth, N. J. Oronite Chem. Co., Russ Bldg., San Francisco 4 Pennsylvania Refining Co., Butler, N. J. Petroleum By-Products Co., 15 Whitehall St., N. Y. Petroleum Specialties, Inc., 400 Madison Ave., N. Y. Shell Petroleum Corp., Shell Bldg., St. Louis Sherwood Refining Co., Englewood, N. J. L. Sonneborn Sons, 88 Lexington Ave., N. Y. Starco Distributors, Inc., 216 W. 14th St., N. Y.

### NICKEL-CLAD EQUIPMENT (see also Soap Machinery)

Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y. Houchin Machinery Co., Hawthorne, N. J. International Nickel Co., 67 Wall St., N. Y. Alan Porter Lee, Inc., 136 Liberty St., N. Y. Littleford Bros., 453 E. Pearl St., Cincinnati Lukens Steel Corp., Coatesville, Pa. H. K. Porter Co., 49th & Harrison Sts., Pittsburgh F. J. Stokes Machine Co., Philadelphia Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

### NICOTINE COMPOUNDS

California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif

E. I. du Pont de Nemours, Wilmington, Del. General Chemical Co., 40 Rector St., N. Y. Hood River Spray Co., Hood River, Ore. Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J. Sanocide Spray Co., Fennville, Mich.

Tobacco By-Products & Chem. Corp., Louisville

### NITRE CAKE (Sodium Acid Sulfate)

Amer. Agricultural Chem. Co., 50 Church St., N. Y. Amer. Cyanamid & Chem. Co., 30 Rockefeller Plaza, N. Y. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

General Chemical Co., 40 Rector St., N. Y. Chas. Lennig & Co., 222 W. Washington Sq., Philadelphia Monsanto Chemical Co., 1724 S. 2nd St., St. Louis Penna Salt Mfg. Co., Philadelphia E. M. Sergeant Pulp & Chem., 350 Fifth Ave., N. Y.

#### NITROPARAFFINS

Commercial Solvents Corp., Terre Haute, Ind.

NON-SOAP DETERGENTS (see Detergents, Synthetic)

### NOVELTY SOAPS

Armour & Co., 1355 W. 31st St., Chicago Illustrated Soap Co., 151 W. 25th St., N. Y. Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J. Peck's Prods. Co., St. Louis, Geo. A. Schmidt Co., 236 W. North Ave., Chicago John T. Stanley Co., 642 W. 30th St., N. Y. Unique Soaps, P. O. Box No. 61, Covington, Ky. Allen B. Wrisley Co., 6801 W. 65th St., Chicago

ODORLESS KEROSENE (see Petroleum Insecticide Base Oils, Deodorized)

OIL, BASE, (see Petroleum Insecticide Base Oils)

### OIL HYDROGENATION PLANTS

William Garrigue Co., 9 S. Clinton St., Chicago Alan Porter Lee, 136 Liberty St., N. Y. Robinson, Butler, Hemingway & Co., Bound Brook, N. J. Struthers Wells Titusville Corp., Warren, Pa. Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

### OIL MILL EQUIPMENT

V. D. Anderson Co., 1935 W. 96th St., Cleveland Bauer Bros. Co., Springfield, O. Buckeye Iron & Brass Works, Dayton, O. French Oil Mill Mach. Co., Piqua, O. William Garrigue Co., 9 S. Clinton St., Chicago Alan Porter Lee, Inc., 136 Liberty St., N. Y. Robinson, Butler, Hemingway Co., Bound Brook, N. J. Ernest Scott & Co., Fall River, Mass. Sprout Waldron & Co., Muncy, Pa. Struthers-Wells Co., Warren, Pa. Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

OIL SOAP (see Potash Soaps)

OLEIC ACID (see Red Oil)

### OLIVE OIL (Commercial)

(see also Brokers and Dealers)

Irving R. Boody & Co., 120 Wall St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.

Eastern Industries, Inc., Ridgefield, N. J.
W. R. Grace & Co., 7 Hanover Sq. N. Y.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
J. H. Redding Co., 17 Battery Pl., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

### OLIVE OIL FOOTS

(see also Brokers and Dealers)

T. G. Cooper & Co., 47 N. 2nd St., Philadelphia Eastern Industries, Inc., Ridgefield, N. J. Otto A. C. Hagen Corp., Public Ledger Bldg., Phila. J. H. Redding Co., 17 Battery Pl., N. Y. Sergeant Chem. Co., 350 Fifth Ave., N. Y. Smith-Weihman Co., 15 Moore St., N. Y. Welch, Holme & Clark Co., 563 Greenwich St., N. Y. OLIVE OIL SOAPS (see Castile Soaps, Textile Soaps)

ORTHODICHLORBENZENE (see listings under Paradichlorbenzene)

#### OXALIC ACID

in

(see also Dealers)

Amer. Cyanamid & Chem. Corp., 30 Rockefeller Plaza. N. Y. N. Y.

E. I du Pont de Nemours & Co., Inc., Wilmington, Del.
Faesy & Besthoff, Inc., 22 E. 40th St., N. Y.
General Chemical Co., 40 Rector St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mallinckrodt Chemical Wks., St. Louis, Mo.
Merck & Co., Rahway, N. J.
S. B. Penick & Co., 50 Church St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Tamms Silica Co., 228 N. La Salle St., Chicago
Jos. Turner & Co., Ridgefield, N. J.
Victor Chemical Works, 141 W. Jackson Blvd., Chicago

PACKAGING MACHINERY (see Cartoning Machy., Filling Machy., Weighing Equip., Wrapping Machy.)

PAILS (Fibre) (see Barrels, Fibre)

PAILS, STEEL (Receptacles), (see Metal Pails)

### PAILS, STEEL, (Shipping Containers)

American Can Co., 230 Park Ave., N. Y.
Bennett Mfg. Co., 14600 Princeton Ave., Chicago
Cans, Inc., 3217 W. 47th Pl., Chicago
Central Can Co., 2415 W. 19th St., Chicago
Continental Can Co., 100 E. 42nd St., N. Y.
Fein's Tin Can Co., Bush Terminal, Brooklyn
Gueder, Paeschke & Frey Co., Milwaukee
Inland Steel Container Co., 6532 S. Menard Ave., Chicago
National Can Co., 110 E. 42nd St., N. Y.
National Steel Barrel Co., 3860 E. 91st St., Cleveland
Pittsburgh Can Co., Pittsburgh, Pa.
Pressed Steel Tank Co., 5717 Greenfield Ave., Milwaukee
Rheem Mfg. Co., 570 Lexington Ave., N. Y.
F. C. Thornton Co., 6712 Union Ave., Cleveland
John Trageser Steam Copper Works, Maspeth, L. I.
Vulcan Stamping & Mfg. Co., 4036 W. Lake St., Chicago
Wheeling Corrugating Co., Wheeling, W. Va.

### PAILS (Wooden)

Beaver Mills, Keene, N. H.
Eagle Woodenware Mfg. Co., Hamilton, O.
Gambrinus Cooperage Works, Louisville
Impervious Package Co., Keene, N. H.
Menasha Woodenware Co., Menasha, Wis.
Richmond Cedar Works, Richmond, Va.

### PALM KERNEL OIL

(see also Brokers and Dealers)

Balfour Guthrie & Co., 67 Wall St., N. Y. Irving R. Boody & Co., 120 Wall St., N. Y. Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Calif.

Spencer Kellogg & Sons, Buffalo, N. Y.

J. H. Redding Co., 17 Battery Pl., N. Y.

Smith-Weihman Co., 15 Moore St., N. Y.

Zimmerman Alderson Carr Co., 25 Boadway, N. Y.

### PALM OIL

(see also Brokers and Dealers)

Balfour Guthrie & Co., 67 Wall St., N. T. G. Cooper & Co., 47 N. 2nd St., Phila.

E. F. Drew & Co., Wecoline Div., Boonton, N. J. Eastern Industries, Ridgefield, N J. Otto A. C. Hagen Corp., Public Ledger Bldg., Phila. Pacific Vegetable Oil Corp., 62 Townsend St., San Fran-Cisco
J. H. Redding Co., 17 Battery Pl., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y
Stein, Hall & Co., 285 Madison Ave., N. Y. (Sumatra)
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Zimmerman Alderson Carr Co., 25 Broadway, N. Y.

PALM OIL FATTY ACIDS (see Fatty Acids)

PAPER CANS (see Cans)

PAPER (Corrugated) (see Boxes, Corrugated)

#### PAPER CUPS

F. N. Burt Co., Batavia, N. Y. Continental Can Co., 100 E. 42nd St., N. Y. Individual Drinking Cup Co., Easton, Pa. Sutherland Paper Co., Kalamazoo, Mich.

### PAPER (Fancy Wrapping)

APER (Fancy Wrapping)

Aluminum Co of America, Gulf Bldg., Pittsburgh Beekman Paper & Card Co., 137 Varick St., N. Y. A. M. Collins Mfg. 1518 Walnut St., Phila.
Louis Dejonge & Co., 155—6th Ave., N. Y. C. J. Fox Co., 236 Ab: on St., Providence, R. I. Fox Paper Co., Lockland, Cincinnati, O. Hampden Glazed Peper & Card Co., Holyoke, Mass. Henderson Lithographing Co., Cincinnati Keller-Dorian Paper Co., 516 W. 34th St., N. Y. New England Card & Paper Co., Springfield, Mass Pictorial Package Co., Aurora, Ill.
Marquette Lithograph Co., 730 N. Franklin St., Chicago Nashua Gummed & Coated Paper Co., Nashua, N. H. Potomac Lithograph Mfg. Co., Washington, D. C. Richardson Co., Lockland, O.
Geo. Schmitt & Co., 253 Maujer St., Brooklyn Louis Schulman Co., 465 Broome St., N. Y. Strobridge Lithographing Co., Cincinnati Sylvania Industrial Corp., 122 E. 42nd St., N. Y. Tramseello Paper Co., Milwaukee, Wisc.
U. S. Printing & Lithographing Co., Cincinnati, O. Whiting-Paterson Co., Inc., 320—13th St., Philadelphia Chas. W. Williams & Co., Inc., 309 Lafayette St., N. Y.

### PAPER TOILET SEAT COVERS

Morton Mfg. Co., 5105 W. Lake St., Chicago National Towel Bendon Ltd, 12 Stewart St., San Sani-Gard Cover Co., 411 W. 5th St., Los Angeles

### PAPER TOWELS and TISSUES

Brown Co., Portland, Me. Brown Co., Portland, Me.
Hoberg Paper & Fibre Co., Green Bay, Wisc.
Scott Paper Co., Chester, Pa.
Straubel Paper Co., Green Bay, Wisc.
Towlsaver, Inc., 2816 E. 11th St., Los Angeles
U. S. Envelope Co., Fulton, N. Y.
U. S. Envelope Co., Lititz Pa.
Victoria Paper Mills Co., Fulton, N. Y.

PARA BLOCKS (see Deodorizing Blocks)

### PARADICHLORBENZENE

Delta Chemical Mfg. Co., 2101 Washington Blvd., Baltimo:e
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Inc.. Wilmington, Del.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Phillipp Bros., 70 Pine St., N. Y.
Rid-O-Moth Corp., South Kearny, N. J.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
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### PARAFFIN OILS

Atlantic Refining Co., 260 S. Broad St., Philadelphia Deep Rock Oil Corp., 155 N. Clark St., Chicago Gulf Refining Co., Pittsburgh Pennsylvania Refining Co., Butler, Pa. Petroleum Specialties, Inc., 400 Madison Ave., N. Y. Chas. L. Read & Co., 120 Greenwich St., N. Y. Sherwood Refining Co., Englewood, N. J. Sinclair Refining Co., 630—5th Ave., N. Y. Shell Petroleum Corp., Shell Bldg., St. Louis Skelly Oil Co., Skelly Bldg., Kansas City. Mo. L. Sonneborn Sons, 88 Lexington Ave., N. Y. Standard Oil Co. (Calif), 225 Bush St., San Francisco Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago Standard Oil Co. (Ohio), Midland Bldg., Cleveland

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Ansbacher-Siegle Corp., Rosebank, S. I Chipman Chemical Co., Bound Brook, N. J. Dow Chemical Co., Midland, Mich. E. I. du Pont de Nemours Co., Wilmington, Del. General Chem. Co., 40 Rector St., N. Y. Reichhold Chemicals, Inc., 105 Bedford Ave., Brooklyn H. H. Rosenthal Co., 25 E. 26th St., N. Y. Sherwin-Williams Co., Cleveland

PASTES (see Adhesives)

PATCHOULI OIL (see Essential Oils)

PEACH KERNEL OIL (see Essential Oils)

### PEANUT OIL

(see also Brokers and Dealers)

Irving R. Boody Co., 120 Wall St., N. Y.
Darling & Co., 4201 S. Ashland Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
Spencer Kellogg & Sons, Buffalo, N. Y.
Pacific Vegetable Oil Corp., 62 Townsend St., San Flancisco

J. H. Redding, Inc., 17 Battery Place, N. Y.
Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Southern Cotton Oil Co., Produce Exchange, N. Y.
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Fire Point	185° -195° F.
Initial Boiling Point	385° -395° F.
Distillation End Point	485° -495° F.
Unsulphonatable Residue	Above 99%
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Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Boston Chemical Industries, 64 E. Brookline St., Boston
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National Oil Products Co., Harrison, N. J.
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Kansas City, Mo.
Sanitary Soap Co., 104 Railroad Ave., Paterson, N. J.
Schaeffer Bros. & Powell Mfg. Co., 102 Barton St.,
St. Louis, Mo.
Skotch Prods. Corp., 2710 Detroit Ave., Cleveland Jansen Soap & Chemical Co., 324 Leavenworth St., St. Louis, Mo. Skotch Prods. Corp., 2710 Detroit Ave., Cleveland Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass. Standard Oil Co. (Ohio), Midland Bldg., Cleveland John T. Stanley Co., 642 W. 30th St., N. Y. Superior Soap Corp., 121 Nostrand Ave., Brooklyn Tech Soap Co., 125 W. 46th Place, Chicago, 9 Tesco Chem Co., P. O. Box 4748, Atlanta Thompson-Hayward Chemical Co., Kansas City, Mo. Tremco Mfg. Co., 398 East 131st St., Cleveland Trojan Products & Mfg. Co., 3130 S. Wabash Ave., Chicago J. A. Tumbler Labs., 423 Hanover St., Baltimore



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Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co.,

230 Park Ave., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Harshaw Chem. Co., Cleveland
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Sergeant Chem. Co., 350 5th Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

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American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y. Buffalo Elec. Chem. Co., River Rd., Buffalo E. I. du Pont de Nemours & Co., Wilmington, Del. Sergeant Chem. Co., 350 Fifth Ave., N. Y. Jos. Turner & Co., Ridgefield, N. J.

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PRIVATE FORMULAS (see under individual products)

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F. J. Stokes Machine Co., Philadelphia, Pa.
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Redistilled Cotton Oil F.A	34-36	100	90-100	2 NPA max.	******
Distilled Coconut F.A	18-22	128	9-15	2 NPA max.	
Distilled Veg. F.A. (VRO)	20-24	110	45-55	3 NPA max.	
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Super Double Pressed Cake or Beads	53.9 54.3	5 to 7	103 104	3 max.	0.8 max.
Special Double Pressed Cake for Candle Mfg	53.9 54.3	5 7	103 105	3 0.8 max.  Ash 0.004 max.	
Triple Pressed (Regular) Cake or Beads	54.5 53.8	4 max.	104 105	2 max.	0.5 max.
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<sup>·</sup>Large crystals.

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Distilled R. (Extra Quality)	8-10/10/12	90	97-98	21/2-31/2 NPA	31/2-4
White Oleine (Redist, R/O)	10-12	90	99-109	11/2 max. NPA	2%
Sap. Red Oil (Reg. Grade)	10-12	88-90	92-95	5-7 max. NPA	3% max.
San, Red Oil (Hi Titre)	34-38		100-102	7 or darker	

(Also Dist. as above except color lighter)
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Pfaltz & Bauer, Inc., 350 Fifth Ave., N. Y.

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Sur-Rid Prods. Co., 455 Paul Brown Bldg., St. Louis

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U. S. Sanitary Specialties Corp.,

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Celina Stearic Acid Co., Celina, Ohio
Century Stearic Acid Candle Works, 41 E. 42nd St., N. Y.
Darling & Co., 4201 S. Ashland Ave., Chicago
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Ridgefield, N. J.
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Otto A. C. Hagen, Public Ledger Bldg., Philadelphia
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Harkness & Cowing, Ivorydale, Cincinnati
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Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Theobald Industries, Kearny, N. J.
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Paramet Chem. Corp., 44th Ave. & 10th St., L. I. City
Reilly Tar & Chem. Corp., Indianapolis
Reichhold Chemicals, Inc., Detroit
Resinous Prods. & Chem. Corp., 222 W. Washington Sq.,
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Newport Industries, Inc., 230 Park Ave., N. Y.

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Hercules Powder Co., Wilmington
National Oil Products Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
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Dodge & Olcott Co., 180 Varick St., N. Y.
Greene Trading Co., 70 Pine St., N. Y. (agents for foreign sellers)
Hammond Paint & Chem. Co., Beacon, N. Y.
J. L. Hopkins & Co., 220 Broadway, N. Y.
Jooster & Janssen, 132 Front St., N. Y.
Lenape Trading Co., 233 Broadway, N. Y.
McCormick & Co., Baltimore, Md.
Orbis Products Corp., 215 Pearl St., N. Y.
S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 1 Park Ave., N. Y.
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Harley Soap Co., Pierce & Orthodox Sts., Philadelphia
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
National Oil Products Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Rome Soap Mfg. Co., Rome, N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
J. A. Tumbler Labs., 423 Hanover St., Baltimore

### SAL AMMONIAC (see Ammonium Chloride)

### SAL SODA

(see also Dealers)

American Cyanamid & Chemicals Corp.,

30 Rockefeller Plaza, N. Y.
Church & Dwight Co., 70 Pine St., N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
Emeryville Chem. Co., 405 Montgomery St., San Francisco
General Chemical Co., 40 Rector St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Mechling Bros. Chemical Co., Camden, N. J.
Pittsburgh Plate Glass Co., Columbia Chem. Div.,
Grant Bidg., Pittsburgh
Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Joseph Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

### SALT (Common Salt)

(see also Dealers)

Diamond Alkali Co., 533 Smithfield St., Pittsburgh Dow Chemical Co., Midland, Mich.

Hooker Electrochemical Co., Niagara Falls, N. Y. International Salt Co., 475 Fifth Ave., N. Y. Jefferson Salt & Mining Co., Louisville, Ky. LeRoy Salt Co., LeRoy, N. Y. Myles Salt Co., 1007 Camp St., New Orleans, La. Pittsburgh Plate Glass Co., Columbia Chemical Div., Grant Bldg., Pittsburgh Pomeroy Salt Co., Pomeroy, Ohio Remington Salt Co., Ithaca, N. Y. Saginaw Salt Prods. Co., Saginaw, Mich. Solvay Sales Corp., 40 Rector St., N. Y. Jos. Turner & Co., Ridgefield, N. J.

### SALT WATER SOAP (Marine Soaps)

Antiseptol Co., 5524 Northwest Highway, Chicago Armour Soap Wks., 1355 W. 31st St., Chicago Buck-Jack Co., 3056 Federal St., Baltimore J. Eavenson & Sons, Camden, N. J. Hewitt Soap Co., Dayton, O. Hockwald Chem. Co., 135 Mississippi St., San Francisco Los Angeles Soap Co., Los Angeles National Oil Products Co., Harrison, N. J. Newell-Gutradt Co., San Francisco Peck's Prods. Co., 5240 N. 2nd St., St. Louis Procter & Gamble Co., Cincinnati, O. John T. Stanley Co., 642 W. 30th St., N. Y. Swift & Co., Chicago M. Werk Co., Cincinnati

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### SAPONIN (Ext. Soap Bark)

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A. C. Drury & Co., 219 East North Water St., Chicago
Enco Chem. Corp., 441 Lexington Ave., N. Y.
Florasynth Labs., 1513 Olmstead Ave., Bronx, N. Y.
Fritzsche Brothers, Inc., 76 Ninth Ave., N. Y.
Hoffman-La Roche, Inc., Nutley, N. J.
Interstate Color Co., 5 Beekman St., N. Y.
Geo. Lueders & Co., 427 Washington St., N. Y.
Merck & Co., Rahway, N. J.
S. B. Penick & Co., 50 Church St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.

### SASSAFRAS, Artificial (see Aromatic Chemicals)

### SCIENIFIC INSTRUMENTS (see Instruments)

### SCOURING POWDERS

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American Soap & Washoline Co., Cohoes, N. Y.
Armour & Co., 1355 W. 31st St., Chicago
Baum's Castorine Co., 200 Mathew St., Rome, N. Y.
Buck-Jack Co., 3056 Federal St., Baltimore
Chemical Mfg. & Distrib. Co., Easton, Pa.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cowles Detergent Co., 7016 Euclid Ave., Cleveland
Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati, O.
Fuld Bros., 702 S. Wolfe St., Baltimore
Hercules Powder Co., Wilmington
Higley Chem. Co., 135 Mississippi St., San Francisco
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St.,
San Francisco, Cal.
Los Angeles Soap Co., 617 E. First St., Los Angeles
Midland Labs., Dubuque, Ia.
National Milling & Chem. Co., Manayunk, Philadelphia
Pacific Chem. Co., 1412 N. Main St., Los Angeles
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Philadelphia
Pittsburgh Plate Glass Co., Columbia Chemical Div.,
Grant Bldg., Pittsburgh
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
Puritan Chem. Co., 209 Peters St., S.W., Atlanta
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Sanitary Soap Co., 104 Railroad Ave., Paterson, N. J.
Solvay Sales Corp., 40 Rector St., N. Y.
S. & S. Soap Co., 324 Barretto St., Bronx, N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Stevens Soap Corp., 200 Sullivan St., Brooklyn
Swift & Co., Chicago
Tesco Chem. Co., P. O. Box 4748, Atlanta
Trojan Products & Mfg. Co., 3130 S. Wabash Ave.,
Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Warwick Chemical Co., West Warwick, R. I.
Allen B. Wrisley Co., 6801 W. 65th St., Philadelphia

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Los Angeles Soap Co., Los Angeles
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Procter & Gamble Co., Cincinnati, O.
Theo. B. Robertson Prods. Co.,
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Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Chicago
Warren Soap Mfg. Co., 51 Waverly St.,
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First Machy. Corp., 819 E. 9th St., N. Y. (Used) Houchin Machinery Co., Hawthorne, N. J. Johnson Automatic Sealer Co., Battle Creek, Mich. R. A. Jones & Co., Cincinnati, O. Karl Kiefer Machine Co., 919 Martin St., Cincinnati New Jersey Machine Corp., Hoboken, N. J. Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago (Used)

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James Counts Soap Co., 2nd and Washington Aves., James Counts Soap Co., 2nd and Washington Aves., St. Louis
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
J. Eavenson & Sons, Camden, N. J.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 Susquehanna Ave., Phila.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Harley Soap Co., Pierce & Orthodox Sts., Phila.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Jansen Soap & Chemical Co., 324 Leavenworth St., San
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Kranich Soap Co., 54 Richards St., Brooklyn Kranich Soap Co., 54 Richards St., Brooklyn Lewis Soap & Chem. Co., Oakland, Calif. Los Angeles Soap Co., 617 E. First St., Los Angeles Los Angeles Soap Co., 617 E. First St., Los Angeles Midland Labs., Dubuque, Ia. Napthole, Inc., 15 E. 26th St., N. Y. National Oil Products Co., Harrison, N. J. Palmer Products, Inc., Waukesha, Wisc. Peck's Prods. Co., 5240 N. 2nd St., St. Louis Procter & Gamble Co., Cincinnati Richards Sales Corp., Warren and Morris Sts., Jersey City, N. J. Theo. B. Robertson Prods. Co., 700 W. Division St. Chicago. Theo. B. Robertson Frods. Co., 100 W. Bivision Chicago
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Swift & Co., Chicago
Tesco Chem. Co., P. O. Box 4748, Atlanta
Thompson-Hayward Chem. Co., Kansas City, Mo.
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chemical Co., 573 W. 131st St., St., N. Y. C.
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
Chicago
Universal Chem. Corp., 35 E. Market St., Akron, O.
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago
Chas. W. Young & Co., 1247 N. 26th St., Phila. Chicago

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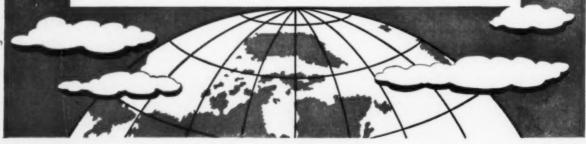
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Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

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SILICO FLUORIDES (see Sodium Silicofluoride)

SLABBERS (see Soap Machinery)

SOAP BARK and EXTRACT (see Saponin)

SOAP BOOKS (see Soap Paper)

SOAP, CASTILE (See Castile Soap)

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Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
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Palmer Products, Inc., Waukesha, Wisc.
Rochester Germicide Co., Rochester, N. Y.
Uncle Sam Chemical Co., 573 W. 131st St., St., N. Y. C.
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
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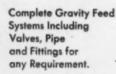
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Alan Porter Lee, 136 Liberty St., N. Y. Wurster & Sanger, 5201 S. Kenwood Ave., Chicago

#### SOAP POWDER MILLS

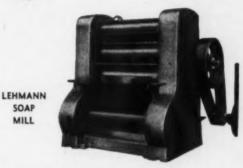
Abbe Engineering Co., 50 Church St., N. Y.
Consolidated Products Co., 15 Park Row, N. Y. (Used)
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 359 46th St., Brooklyn, N. Y.
J. M. Lehmann Co., Lyndhurst, N. J.
Newman Tallow & Soap Mach. Co., 1051 W. 35th,
Chicago (Used)
Prater Pulverizing Co., 1825 55th Ave., Chicago
Stein Equipment Corp., 426 Broome St., N. Y. (Used)

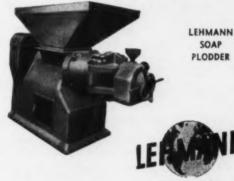
## LEHMANN Performance TODAY... Your Assurance for TOMORROW

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#### MEAN

#### A Stable Base

POWCO BRAND pulverized NEUTRAL SOAPS are laboratory controlled to maintain rigid uniformity of physical and chemical properties so that once you adopt a POWCO BRAND Soap, your base does not vary. This assures a uniform end-product . . . a product that guards against production troubles and complaints caused by changes in your product.

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SOAP, POWDERED (White neutral powdered soap, powdered castile soap, etc., 95-99 per cent anhydrous soap. Do not confuse with Soap Powders.)

Armour Soap Wks., 1355 W. 31st St., Chicago Colgate-Palmolive-Peet Co., Jersey City, N. J. Conti Products Corp., 155 Variek St., N. Y. J. Eavenson & Sons, Camden, N. J. J. L. Hopkins & Co., 220 Broadway, N. Y. Insto Co., 110 Center St., Los Angeles Kranich Soap Co., 60 Richards St., Brooklyn, N. Y. Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J. S. B. Penick & Co., 50 Church St., N. Y. John Powell & Co., 1 Park Ave., N. Y. R J. Prentiss & Co., 80 John St., N. Y. Geo. A. Schmidt Co., 236 W. North Ave., Chicago Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.

Allen B. Wrisley Co., 6801 W. 56th St., Chicago

#### SOAP PERFUMES

van Ameringen-Haebler, Inc., 315 Fourth Ave., N. Y. Aromatic Products, Inc., 15 E. 30th St., N. Y. Bush Aromatics, Inc., 136 Liberty St., New York Ph. Chaleyer, Inc., 160 E. 56th St., N. Y. Antoine Chiris Co., Inc., 115 E. 23rd St., N. Y. Compagnie Duval, Division of S. B. Penick & Co., 50 Church St., N. Y.
Compagnie Parento, Croton-on-Hudson, N. Y. Dodge & Olcott Co., 180 Varick St., N. Y.
P. R. Dreyer, Inc., 119 W. 19th St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del. Felton Chemical Co., 603 Johnston Ave., Brooklyn Firmenich & Co., 135 5th Ave., N. Y.
Florasynth Labs., 1513 Olmstead Ave., Bronx, N. Y.
Rene Forster Co., 404—4th Ave., N. Y.
Fritzsche Bros., Inc., 76 Ninth Ave., N. Y.
Fritzsche Bros., Inc., 76 Ninth Ave., N. Y.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Geo. Lueders & Co., 427 Washington St., N. Y.
Naugatuck Aromatics, 254 Fourth Ave., N. Y.
Neumann-Buslee & Wolfe, 224 W. Huron St., Chicago New York Aromatics Co., 153 Waverly Pl., N. Y.
Norda Essential Oil & Chem. Co., 601 W. 16th St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
Polak's Frutal Works, 36-14 35th St., L. I. City, N. Y.
Roure-Dupont, Inc., 366 Madison Ave., N. Y.
Schimmel & Co., 601 W. 26th St., N. Y.
Seeley & Co., 136 Liberty St., N. Y.
Synfheur Scientific Labs., Monticello, N. Y.
Tombarel Prods. Corp., 12 E. 22nd St., N. Y.
Tombarel Prods. Corp., 12 E. 22nd St., N. Y.
Tombarel Prods. Corp., 12 E. 22nd St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.
Van Dyk & Co., Belleville, N. J.
Albert Verley, Inc., 232 E. Ohio St., Chicago

#### SOAP POWDERS

(Do not confuse with pure powdered soaps)

American Soap Powder Wks., Inc., 98 Van Dyk St., Brooklyn
American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Beach Soap Co., Lawrence, Mass.
Cowles Detergent Co., 7016 Euclid Ave., Cleveland
Chemical Mfg. & Dist. Co., Easton, Pa.
Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati
J. Eavenson & Sons, Camden, N. J.
Haskins Bros. & Co., Omaha
Hercules Powder Co., Wilmington, Del.
Hewitt Soap Co., Dayton, O.

Hockwald Chemical Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Los Angeles Soap Co., 617 E. First St., Los Angeles
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
Napthole, Inc., 15 E. 26th St., N. Y.
National Milling & Chem. Co., Manayunk, Phila.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
Theo. B. Robertson Prods. Co., 700 W. Division St.,
Chicago
Sanitary Soap Co., 104 Railroad Ave., Paterson, N. J.
S. & S. Soap Co., 324 Barretto St., Bronx, N. Y.
Skotch Prods. Corp., 2710 Detroit Ave., Cleveland
Stevens Soap Corp., 200 Sullivan St., Brooklyn
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Union Stock Yards, Chicago
Vasco Prods. Co., Elmira, N. Y.
Vliet Soap Co., 638 Monroe St., Brooklyn
Warren Soap Mfg. Co., 51 Waverly St., Cambridge,
Mass.
M. Werk Co., St. Bernard, Cincinnati
Western Chem. & Mfg. Co.,
4032 S. Wentworth Ave., Chicago
Chas. W. Young & Co., Phila.

SOAP PRESSES (see Presses)

SOAP SHEETS (see Soap Paper)

SOAP SOLUTIONIZING DEVICE (Solutionizing and dispensing drums for soft soaps)

Clifton Chemical Co., 247 Front St., N. Y. Davies-Young Soap Co., Dayton, O. Rudolph Guth, Inc., 9604 Meech Ave., Cleveland, Ohio

SOAP SLABBERS (see Soap Machinery)

SOAP STOCK (Boiled down cotton oil soap stock, etc.)

(see also Brokers and Dealers)

Armour & Co., 1355 W. 31st St., Chicago
Brode Corp., Memphis, Tenn.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Wm. H. Floyd & Co., Los Angeles
H. Hentz & Co., 60 Beaver St., N. Y.
Portsmouth Cotton Oil Refining Co., Portsmouth, Va.
Procter & Gamble Co., Cincinnati, O.
Southern Cotton Oil Co., 21 West St., N. Y.
A. E. Staley Mfg. Co., Decatur, Ill.
Welch, Holme & Clark, Inc., 563 Greenwich St., N. Y.

SOAP VALVES (see Soap Dispensing Systems)

SOAP, WHALE OIL (see Whale Oil Soap)

SOAP WRAPPING MACHY. (see Wrapping Mach.)

SOAPLESS DETERGENTS (see Detergents, Synthetic)

SOAPLESS SHAMPOOS (see Shampoos Soapless)

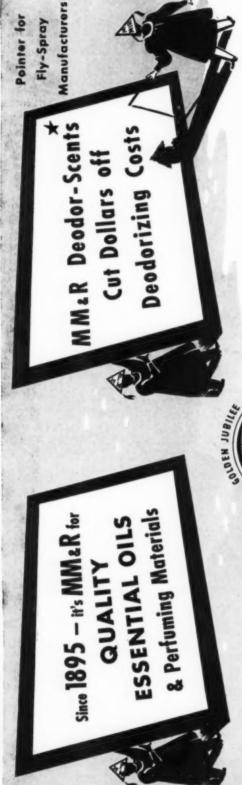
SOAPS, AUTO (see Potash Soaps)

SOAPS, FLOATING (see Floating Soaps)

SOAPS, GRANULATED (see Laundry Soaps, Granulated)

SOAPS, LIQUID (see Potash Soaps)

SOAPS, MEDICINAL, CAKE (see Medicinal Soaps, Cake)



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SOAPS, MOTTLED (see Mottled Soaps)

SOAPS, PINE SCRUB (see Pine Scrub Soaps)

SOAPS, SCOURING (see Scouring Soaps)

SOAPS, SCRUBBING (see Floor Scrub Soaps)

SOAPS, SURGICAL (see Potash Soaps)

SOAPS, TEXTILE (see Textile Soaps)

#### SODA ASH

(see also Dealers)

American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y.
Dianond Alkali Co., 535 Smithfield St., Pittsburgh Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours Co., Wilmington, Del. Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Penn Salt Mfg. Co., Widener Bldg., Phila.
Philipp Bros., 70 Pine St., N. Y.
Pittsburgh Plate Glass Co., Columbia Chemical Div.,
Grant Bldg., Pittsburgh
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Wyandotte Chem. Corp., Wyandotte, Mich.

#### SODA (Modified)

(see also Dealers)

American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh E. I. du Pont de Nemours Co., Wilmington, Del. Innis, Speiden & Co., 117 Liberty St., N. Y.
Los Angeles Soap Co., 617 E. First St., Los Angeles Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Pittsburgh Plate Glass Co., Columbia Chemical Div., Grant Bldg., Pittsburgh
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Wyandotte Chem. Corp., Wyandotte, Mich.

#### SODIUM ACID SULFATE (see Nitre Cake)

#### SODIUM ALGINATE

Algin Corp. of America, 24 State St., N. Y. Kelco Co., 31 Nassau St., N. Y.

#### SODIUM ARSENITE

Chipman Chem. Co., Bound Brook, N. J. Penn Salt Mfg. Co., Widener Bldg., Phila. Shepherd Chem. Co., Cincinnati 12, O. Stauffer Chem. Co., 420 Lexington Ave., N. Y.

#### SODIUM BICARBONATE

(see also Dealers)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Church & Dwight Co., 70 Pine St., N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh E. I. du Pont de Nemours Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Monsanto Chem. Co., St. Louis
Pennsylvania Salt Mfg. Co., Widener Bldg., Philadelphia

Pittsburgh Plate Glass Co., Columbia Chemical Div., Grant Bldg., Pittsburgh H. H. Rosenthal Co., 25 E. 26th St., N. Y. Sergeant Chemical Co., 350 5th Ave., N. Y. Solvay Sales Corp., 40 Rector St., N. Y. Jos. Turner & Co., Ridgefield, N. J. Welch Holme & Clark Co., 563 Greenwich St., N. Y. Wyandotte Chem. Corp., Wyandotte, Mich.

#### SODIUM BICHROMATE

(see also Dealers)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh E. I. du Pont de Nemours Co., Wilmington, Del. General Chem. Co., 40 Rector St., N. Y.
Merck & Co., Rahway, N. J.
Mutual Chemical Co., 270 Madison Ave., N. Y.
Natural Products Refining Co., 900 Garfield Ave., Jerse City, N. J.
Prior Chem. Corp., 420 Lexington Ave., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sergeant Chem. Co., 350 Fifth Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

#### SODIUM BISULFATE (see Nitre Cake)

SODIUM CARBONATE (see Soda Ash)

#### SODIUM CHLORATE

E. I. du Pont de Nemours & Co., Wilmington Merck & Co., Rahway, N. J. Oldbury Electrochem. Co., 22 E. 40th St., N. Y. Penn Salt Mfg. Co., Widener Bldg., Phila. Western Electrochem. Co., Los Angeles 23, Calif.

#### SODIUM CHLORIDE (see Salt, Common Salt)

#### SODIUM CYANIDE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y. E. I. du Pont de Nemours Co., Wilmington, Del. General Chem. Co., 40 Rector St., N. Y. H. H. Rosenthal Co., 25 E. 26th St., N. Y. Jos. Turner & Co., Ridgefield, N. J.

#### SODIUM FLUORIDE (see Fluorides)

SODIUM FLUOSILICATE (see Sodium Silicofluoride)

#### SODIUM HYDROSULFITE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
J. T. Baker Chem. Co., Phillipsburg, N. J.
E. I. du Pont de Nemours Co., Wilmington, Del. General Chem. Co., 40 Rector St., N. Y.
General Dyestuffs Corp., 435 Hudson St., N. Y.
Merck & Co., Rahway, N. J.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Royce Chemical Co., Carlton Hill, N. J.

#### SODIUM HYPOCHLORITE (see Laundry Bleach)

#### SODIUM HYPOSULFITE (Thiosulfate)

E. I. du Pont de Nemours Co., Wilmington, Del. General Chem. Co., 40 Rector St., N. Y. A. R. Maas Chem. Co., South Gate, Calif. Mallinckrodt Chem. Wks., St. Louis Merck & Co., Rahway, N. J. Rohm & Haas, 222 W. Washington Sq., Phila. H. H. Rosenthal Co., 25 E. 26th St., N. Y. Sergeant Chem. Co., 350 Fifth Ave., N. Y.



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#### SODIUM METASILICATE

Cowles Detergent Co., 7016 Euclid Ave., Cleveland Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh E. I. du Pont de Nemours Co., Wilmington, Del. Emeryville Chem. Co., 405 Montgomery St., San Francisco

#### SODIUM METAPHOSPHATE

General Chem. Co., 40 Rector St., N. Y.
MacKenzie Labs., Front & Yarnell Sts., Chester, Pa.
Mechling Bros. Chemical Co., Camden, N. J.
Philadelphia Quartz Co., 125 So. 3rd St., Phila.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### SODIUM ORTHOSILICATE

Cowles Detergent Co., 7016 Euclid Ave., Cleveland Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Phila. Philadelphia Quartz Co., 125 So. 3rd St., Phila.

#### SODIUM PERBORATE

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y. E. I. du Pont de Nemours Co., Wilmington, Del. Innis, Speiden & Co., 117 Liberty St., N. Y. Merck & Co., Rahway, N. J.

#### SODIUM PYROPHOSPHATE (see Tetra Sodium Pyrophosphate)

#### SODIUM SESQUICARBONATE

Diamond Alkali Co., 535 Smithfield St., Pittsburgh Mathieson Alkali Wks., 60 E. 42n. St., N. Y. Mechling Bros. Chemical Co., Camden, N. J. Solvay Sales Corp., 40 Rector St., N. Y. Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### SODIUM SESQUISILICATE

Cowles Detergent Co., 7016 Euclid Ave., Cleveland Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh Philadelphia Quartz Co., 125 So. 3rd St., Phila. Jos. Turner & Co., Ridgefield, N. J.

#### **80DIUM SILICATE**

(see also Dealers)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours Co., Wilmington, Del. Emeryville Chem. Co., 405 Montgomer; St., San Francisco General Chem. Co., 40 Rector St., N. Y. Mechling Bros. Chem. Co., Camden, N. J. Philadelphia Quartz Co., 125 So. 3rd St., Phila. Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### SODIUM SILICOFLUORIDE

American British Chem. Supplies, Inc., 180 Madison Ave., N. Y. American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y. American Fluoride Corp., 151 W. 19th St., N. Y. Armour Fertilizer Wks., Atlanta, Ga. Blockson Chemical Co., Joliet, Ill.

E. I. du Pont de Nemours Co., Wilmington, Del. General Chem. Co., 40 Rector St., N. Y. Charles Hardy, Inc., 415 Lexington Ave., N. Y. Harshaw Chemical Co., 1945 E. 97th St., Cleveland Innis, Speiden & Co., 117 Liberty St., N. Y. W. B. Lawson, Inc., Union Commerce Bldg., Cleveland Merck & Co., Rahway, N. J. Penn. Salt Mfg. Co., Widener Bldg., Phila. Sergeant Chem. Co., 350 Fifth Ave., N. Y. H. H. Rosenthal Co., 25 E. 26th St., N. Y. Henry Sundheimer, Inc., 103 Park Ave., N. Y. Tennessee Corp., Atlanta, Ga. Jos. Turner & Co., Ridgefield, N. J.

#### SOLUBLE OILS (Sulfonated Oils)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.

Apex Chemical Co., 225 W. 34th St., N. Y.

Arabol Mfg. Co., 110 E. 42nd St., N. Y.

Atlantic Refining Co, 260 S. Broad St., Phila..

Napthole, Inc., 15 E. 26th St., N. Y.

Richards Sales Corp., Warren and Morris Sts., Jersey City, N. J.

Sichlair Refining Co., East Chicago, Ind.

L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.

Jacques Wolf & Co., Passaic, N. J.

#### SOLVENT NAPHTHA

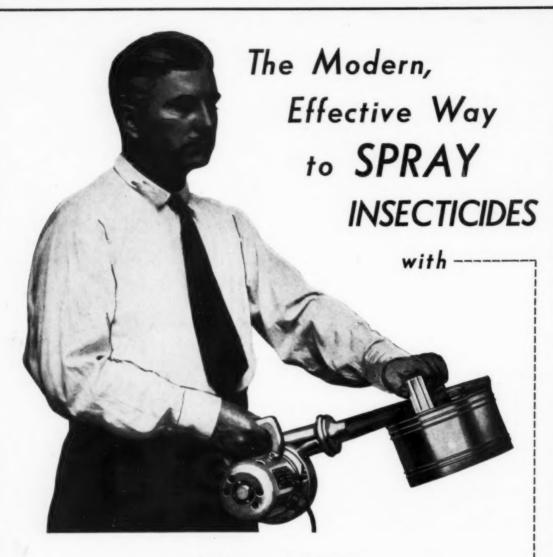
Anderson-Prichard Oil Corp., Oklahoma City, Okla.
Atlantic Refining Co., 260 S. Broad St., Phila.
Barrett Co., 40 Rector St., N. Y.
S. H. Bell Co., 1407 Gulf Bldg., Pittsburgh
Commerce Petroleum Co., 2923 Lock St., Chicago
Deep Rock Oil Corp., 155 N. Clark St., Chicago
Koppers Co., Koppers Bldg., Pittsburgh
Neville Co., Pittsburgh
Pennsylvania Refining Co., Butler, Pa.
Pittsburgh Coal Carbonization Co., Oliver Bldg.,
Pittsburgh
Reilly Tar & Chemical Corp., Indianapolis
Shell Oil Co., 50 W. 50th St., N. Y.
Shell Petroleum Corp., Shell Bldg., St. Louis
Sinclair Refining Co., East Chicago, Ind.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co., (Ind.), 910 S. Michigan Ave., Chicago
Woburn Chemical Corp., Harrison, N. J.

#### SOLVENTS, ORGANIC (Chlorinated, etc.)

Barrett Co., 40 Rector St., N. Y.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Commercial Solvents Corp., Terre Haute, Ind.
Crosby Naval Stores, Inc., Picayune, Miss.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
Delta Chemical Co., 2101 Washington Blvd., Baltimore
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours Co., Wilmington, Del.
Hercules Powder Co., Wilmington
Hooker Electrochemical Co., Niagara Falls, N. Y.
Kessler Chem. Corp., Philadelphia
Koppers Co., Koppers Bldg., Pittsburgh
Neville Co., Pittsburgh
Pennsylvania Refining Co., Butler, Pa.
Pittsburgh Coal Carbonization Co., Oliver Bldg.,
Pittsburgh
Reilly Tar & Chemical Corp., Indianapolis
Sharples Solvents Corp., Phila.
Shell Union Oil Corp., 100 Bush St., San Francisco
Standard Alcohol Co., 26 Broadway, N. Y.
U. S. Industrial Chem. Co., 60 E. 42nd St., N. Y.
Velsicol Corp., 120 E. Pearson St., Chicago
Westvaco Chlorine Prods. Co., 405 Lexington Ave., N. Y.

#### SOLVENTS, PETROLEUM

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#### SOYA BEAN OIL

(see also Brokers and Dealers)

Balfour, Guthrie Co., 67 Wall St., N. Y.
Irving R. Boody & Co., 120 Wall St., N. Y.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Inc., Ridgefield, N. J.
William O. Goodrich Co., Milwaukee, Wis.
W. R. Grace & Co., 7 Hanover Sq., N. Y.
Spencer Kellogg & Son, Buffalo, N. Y.
Pacific Vegetable Oil Co., 62 Townsend St., San Francisco
Procter & Gamble Co. Cincipnati Pacine Vegetable Oil Co., 62 Townsend St., San France
Procter & Gamble Co., Cincinnati
Purina Mills, St. Louis
Werner G. Smith Co., 2191 W. 110th St., Cleveland
A. E. Staley Mfg. Co., Decatur, Ill.
A. E. Starkie Co., 5461 W. Division St., Chicago A. E. Starkie Co., 5461 W. Division St., Unicago Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### SPERMACETI

E. A. Bromund Co., 258 Broadway, N. Y. A. C. Drury & Co., 210 E. Water St., Chicago Innis, Speiden & Co., 117 Liberty St., N. Y. Innis, Speiden & Co., 117 Liberty St., N. Y.
Lenape Trading Co., 233 Broadway, N. Y.
George H. Lincks, 155 John St., N. Y.
Neumann-Buslee & Wolfe, 224 W. Huron St., Chicago
Orbis Products Corp., 215 Pearl St., N. Y.
S. B. Penick & Co., 50 Church St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Smith & Nichols, 121 Maiden Lane, N. Y.
Strohmeyer & Arpe Co., 139 Franklin St., N. Y.
Will & Baumer Candle Co., Syracuse, N. Y.

#### SPONGES (Natural and Synthetic)

Addison Sponge Co., 118 E. Court St., Cincinnati Allied Industrial Prods. Co., 620 N. Michigan, Chicago American Sponge & Chamois Co., 47 Ann St., N. Y. American Standard Mfg. Co., 2509 S. Green St., Chicago Atlas Sponge Co., 291 Church St., N. Y. E. I. du Pont de Nemours & Co., Wilmington Florida Sponge & Chamois Co., 42 Cliff St., N. Y. Great Eastern Sponge & Chamois Co., 833 N. Catt. Pk. Ave., Baltimore Ave., Baltimore James H. Rhodes & Co., 157 W. Hubbard St., Chicago Robinson Sponge Co., 1805 Atlantic Ave., Brooklyn

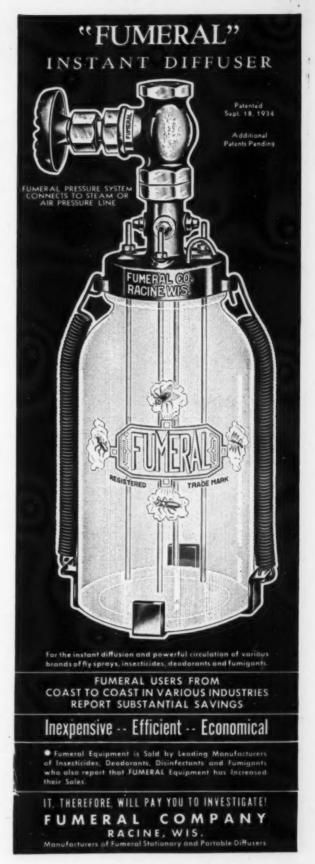
#### SPOTTING FLUIDS (see Cleaning Fluids)

#### SPRAYERS, BOTTLE

Arnold-Copeland Co., 22 Elkins St., So. Boston, Mass. Celluplastec Corp., 50 Avenue L, Newark, N. J. Federal Tool Corp., 412 Leavitt St., Chicago Wilco Co., 7016 McKinley Ave., Los Angeles

#### SPRAYERS, COMPRESSED AIR

Acmeline Mfg. Co., Traverse City, Mich. Binks Mfg. Co., 3114 Carroll Ave., Chicago Breuer Electric Mfg. Co., 5120 N. Ravenswood Ave., Chicago





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At the present time our pro-duction on some of these items is restricted. On sev-eral models WPB regulations permit shipment on priority orders.

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#### SPRAYERS, COMPRESSED AIR

E. C. Brown Co., Rochester, N. Y.
DeVilbiss Co., Toledo, O.
Dobbins Mfg. Co., Elkhart, Ind.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Fumeral Co., Racine, Wis.
Hudson Mfg. Co., 589 E. Illinois St., Chicago
Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago
Lowell Mfg. Co., North Pier Terminal, Chicago
Miller-Simons, Inc., 2900 S. 61st Court, Chicago
Mystc Products Co., 625 15th Ave., S., Minneapolis
Simmon Paint Spray Brush Co., Dayton, O.
Volume Sprayer Mfg. Co., Tulsa, Okla.

#### SPRAYERS, ELECTRIC

Acmeline Mfg. Co., Traverse City, Mich.
Binks Mfg. Co., 3114 Carroll Ave., Chicago
Breuer Electric Mfg. Co., 5120 N. Ravenswood Ave.,
Chicago
Dobbins Mfg. Co., Elkhart, Ind.
DuLa Mfg. Co., 351 Atlantic Ave., Brooklyn, N. Y.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Fumeral Co., Racine, Wis.
Hudson Mfg. Co., 589 E. Illinois St., Chicago
Lowell Mfg. Co., North Pier Terminal, Chicago
Metal Specialties Mfg. Co., 3208 Carroll Ave., Chicago

#### SPRAYERS, ELECTRIC, STEAM

DuLa Mfg. Co., 351 Atlantic Ave., Brooklyn Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis. Fumeral Co., Racine, Wis. Kaz Mfg. Co., 611 W. 43rd St., N. Y. Lowell Mfg. Co., North Pier Terminal, Chicago Mystic Products Co., 625 15th Ave., S., Minneapolis

#### SPRAYERS, HAND

Acmeline Mfg. Co., Traverse City, Mich.
R. E. Chapin Mfg. Works, Batavia, N. Y.
Dobbins Mfg. Co., Elkhart, Ind.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Hudson Mfg. Co., 589 E. Illinois St., Chicago
Jaeckh Mfg. Co., Cincinnati
Lowell Mfg. Co., North Pier Terminal, Chicago
D. B. Smith Co., Utica, N. Y.
Standard Container, Inc., Rockaway, N. J.
Universal Metal Prods. Co., Lowell, Mich.
Volume Sprayer Mfg. Co., Tulsa, Okla.
Wilco Co., 6800 McKinley Ave., Los Angeles

#### SPRAYERS, MOUTH

Acmeline Mfg. Co., Traverse City, Mich.
Arnold-Copeland Co., 22 Elkins St., So. Boston, Mass.
H. D. Hudson Mfg. Co., 589 E. Illinois St., Chicago
Lowell Mfg. Co., North Pier Terminal, Chicago
D. B. Smith & Co., Utica, N. Y.
Standard Container, Inc., Rockaway, N. J.

#### SPRAYERS, SODIUM HYPOCHLORITE

Fumeral Co., Racine, Wisc.

SPREADERS for INSECTICIDE (see Clays)

#### SQUEEGEES

Ardmore Mfg. Co., 5082 N. Lincoln Ave., Chicago W. J. Dennis & Co., 1732 N. Kolmar, Chicago A F. Dormeyer Mfg. Co., 4316 N. Kilpatk. St., Chicago Aug. Hanke & Son Co., 6326 W. Guyer Ave., Chicago Illinois Duster & Brush Co., 1944 Webster Ave., Chicago J. Racenstein & Co., 621 Broadway, N. Y. Reliance Hardward & Mfg. Co., 1438 N. Keating St., Chicago

#### SQUILLS (Rodent Poison)

Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago

J. L. Hopkins & Co., 220 Broadway, N. Y.
McLaughlin Gormley King Co., 1715 5th St., S. E., Minneapolis, Minn.
S. Penick & Co., 50 Church St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
Ratin Laboratory, 116 Broad St., N. Y.
York Chem. Co., 424 W. 18th St., N Y

#### STANNOUS CHLORIDE (see Tin Crystals)

#### STARCH

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Arabol Mfg. Co., 110 E. 42nd St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila
A. C. Drury & Co., 219 E. N. Water St., Chicago Innis, Speiden & Co., 117 Liberty St., N. Y.
Keever Starch Co., Columbus, O.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
National Starch Prods., 270 Madison Ave., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
L. A. Salomon & Bro., 216 Pearl St.
A. E. Staley Mfg. Co., Decatur, Ill.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### STEARATES (Zinc, Calcium, Magnesium, etc)

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Cuprinol Inc., 7 Water St., Boston
E. I. du Pont de Nemours Co., Wilmington, Del. Franks Chem. Prods. Co., 55 33rd St., Brooklyn Harshaw Chemical Co., 1945 E. 97th St., Cleveland Hooker Electrochemical Co., Niagara Falls, N. Y. Innis, Speiden & Co., 117 Liberty St., N. Y. Mallinckrodt Chem. Wks., St. Louis Merck & Co., Rahway, N. J.
National Oil Products Co., Harrison, N. J.
M. W. Parsons, Inc., 59 Beekman St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Synthetic Products Co.,
London Rd. & Euclid Ave., Cleveland
Jos. Turner & Co., Ridgefield, N. J.
Whittaker, Clark & Daniels, 260 W. Bway, N. Y.

#### STEARIC ACID

(see also Brokers and Dealers)

American British Chem. Supplies, Inc., 180 Madison Ave., N. Y.

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.

Armour & Co., 1355 W. 31st St., Chicago Celina Stearic Acid Co., Celina, Ohio Century Stearic Acid Candle Wks., 41 E. 42nd St., N. Y. Chemical Sales Corp., Pittsburgh, 19

Darling & Co., 4201 S. Ashland Ave., Chicago E. F. Drew & Co., Wecoline Div., Boonton, N. J. Eastern Industries, Inc., 4300 Carew Tower, Cincinnati A. Gross & Co., 295 Madison Ave., N. Y.

W. C. Hardesty Co., 41 E. 42nd St., N. Y.

Harkness & Cowing, Ivorydale, Cincinnati Innis, Speiden & Co., 17 Liberty St., N. Y.

National Oil Products Ce., Harrison, N. J.

Orbis Products Corp., 215 Pearl St., N. Y.

Procter & Gamble Co., Cincinnati
H. H. Rosenthal Co., 25 E. 26th St., N. Y.

Werner G. Smith Co., 2191 W. 110th St., Cleveland A. E. Starkie, 5461 W. Division St., Chicago

Theobald Industries, Kearny, N. J.

Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

M. Werk Co., St. Bernard, Cincinnati
Will & Baumer Candle Co., Syracuse, N. Y.

Wilson-Martin Co., 295 Madison Ave., N. Y.

#### STEARINE

(see also Brokers and Dealers)

Celina Stearic Acid Co., Celina, Ohio
Darling & Co., 4201 S. Ashland Ave., Chicago
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, Inc., 4300 Carew Tower, Cincinnati
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Independent Mfg. Co., Bridesburg P. O., Phila.
Morris Co., Union Stock Yards, Chicago
Pacific Vegetable Oil Corp., 62 Townsend St.,
San Experison San Francisco Procter & Gamble Co., Cincinnati
Werner G. Smith Co., 2191 W. 110th St., Cleveland
A. E. Starkie, 5461 W. Division St., Chicago
Louis Stern Sons., Inc., Produce Exch., N. Y. Swift & Co., Union Stock Yards., Chicago Welch, Holme & Clark Co., 563 Greenwich St., N. Y. Wilson & Co., 4100 Ashland Ave., Chicago

#### STEARINE PITCH

Allied Asphalt & Mineral Corp., 217 Broadway, N. Y. Armour & Co., 1355 W. 31st St., Chicago Darling & Co., 4201 S. Ashland Ave., Chicago Eastern Industries, Inc., Ridgefield, N. J. Emery Industries, Inc., 4300 Carew Tower, Cincinnati A. Gross & Co., 295 Madison Ave., N. Y. W. C. Hardesty Co., 41 E. 42nd St., N. Y. Procter & Gamble Co., Ivorydale, O. Werner G. Smith Co., 2191 W. 110th St., Cleveland A. E. Starkie, 5461 W. Division St., Chicago Wilson & Co., 4100 Ashland Ave., Chicago

#### STEEL DRUMS (see Drums, Steel)

STEEL PAILS (see Pails, Steel)

#### STEEL, NICKEL CLAD

Illinois Steel Co., 208 S. La Salle St., Chicago International Nickel Co., 67 Wall St., N. Y. Lukens Steel Co., Coatesville, Pa.
Republic Steel Corp., Republic Bldg., Cleveland, O.

#### STEEL TANKS (see Tanks, Steel)

#### STEEL WOOL

American Steel Wool Mfg. Co., 42-24 Orchard St., L. I. City, N. Y. International Steel Wool Co., Springfield, Ohio James H. Rhodes & Co., 157 W. Hubbard St., Chicago Williams Co., London, Ohio

#### STODDARD'S SOLVENT (see Solvents, Petroleum)

STORAGE TANKS (see Tanks, Storage, etc.)

SUDSING EQUIPMENT (see Soap Solutionizing Device)

SULFATED FATTY ALCOHOLS (and other Non-Soap Organic Detergents, and Derivatives)

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y. Colgate-Palmolive-Peet Co., Jersey City, N. J. E. F. Drew & Co., Boonton, N. J. E. I. du Pont de Nemours Co., Wilmington, Del. General Dyestuffs Corp., 435 Hudson St., N. Y. Hummel Chemical Co., 90 West St., N. Y. N. I. Malmstrom & Co., 147 Lombardy St., Brooklyn Michel Export Co., 90 Broad St., N. Y. Monsanto Chem. Co., St. Louis National Aniline & Chem. Div., 40 Rector St., N. Y. National Oil Products Co., Harrison, N. J. Procter & Gamble Co., Cincinnati Richards Sales Corp., Jersey City, N. J.

Sandoz Chemical Works, 61 Van Dam St., N. Y. Jacques Wolfe & Co., Passaic, N. J.

#### SULFONATED OILS

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Atlantic Refining Co., 260 S. Broad St., Phila.
Colloids, Inc., 395 Frelinghuysen Ave., Newark, N. J.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, Inc., Ridgefield, N. J.
Emery Industries, 4300 Carew Tower, Cincinnati
Hercules Powder Co., Wilmington
Kali Mfg. Co., 1408 N. Front St., Philadelphia
National Oil Products Co., Harrison, N. J.
Richards Sales Corp., Jersey City, N. J.
Sandoz Chemical Works, 61 Van Dam St., N. Y.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
A. E. Starkie, 5461 W. Division St., Chicago
Arthur C. Trask Co., 4103 S. La Salle St., Chicago
Warwick Chem. Co., West Warwick, R. I.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Jacques Wolfe & Co., Passaic, N. J. Plaza, N.

#### SULFOXYLATES (Soap Bleaches)

Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila-Jacques Wolfe & Co., Passaic, N. J.

#### SULFUR CANDLES

Koppers Co., White Tar Div., Kearny, N. J. Reliable Chemical Co., Passaic, N. J.

#### SUPERFATTING AGENTS (for Toilet Soaps)

N. I. Malmstrom Co., 147 Lombardy St., Bklyn. National Oil Products Co., Harrison, N. J. Pfaltz & Bauer, 350 5th Ave., N. Y. Pylam Products Co., 799 Greenwich St., N. Y. Richards Sales Corp., Jersey City, N. J.
Robinson Wagner Co., 110 E. 42nd St., N. Y.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.

#### SUPERHEATERS

Eureka Machine Co., 2601 Vega Ave., Cleveland Ernest Scott & Co., Fall River, Mass. The Superheater Co., 60 E. 42nd St., N. Y.

#### SURGICAL SOAPS (see Potash Soaps)

#### SWEEPING COMPOUNDS

A-1 Floor Sweep Co., 1923 N. Haskell, Dallas American Excelsior Corp., 1000 N. Halstead St., Chicago American Soap & Washoline Co., Cohoes, N. Y. Banner Chemical Prod. Corp., 60 Elm St., Newark, N. J. Baums Castorine Co., 200 Matthews St., Rome, N. Y. Philip Carey Mfg. Co., Lockland, Cincinnati Champion Mfg. Co., 322 S. Erie St., Indianapolis, Ind. Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago Creco Co., Inc., Creco Bldg., Long Island City, N. Y. Filtrol Corp., 634 S. Spring St., Los Angeles Fitch Dustdown Co., 801 S. Howard St., Baltimore Fuld Bros., 702 S. Wolfe St., Baltimore Higley Chemical Co., Dubuque, Iowa Hockwald Chem. Co., 135 Mississippi St., San Francisco R. M. Hollingshead Corp., Camden, N. J. Hubman Supply Co., 225 N. 4th St., Columbus, O. Hysan Products Co., 58 E. Cullerton St., Chicago Frank Miller & Sons, 2240 W. 58th St., Chicago North Coast Soap & Chem. Wks., Seattle, Wash. Pacific Chem. Co., 1421 N. Main St., Los Angeles Palmer Products, Inc., Walkesha, Wisc. Peck's Prods. Co., 528 N. Second St., St. Louis Pioneer Mfg. Co., Cleveland, O. Port Huron Detergent Co., Port Huron, Mich. Puritan Chem. Co., 209 Peters St., N. W. Atlanta Riverside Chem. Co., N. Tonawanda, N. Y. Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago Rochester Germicide Co., Rochester, N. Y. Chicago Rochester Germicide Co., Rochester, N. Y.

#### SWEEPING COMPOUNDS (Contd.)

Sanco Prods. Inc., Greenville, O. Sanitary Soap Co., 104 Railroad Ave., Paterson, N. J. Jno. C. F. Snyder & Sons, Inc., 2304 N. 28th St., Phila. Solshine Mfg. Co., 412—2nd St., Fall River, Mass. Standard Chem. Co., 213 Jackson St., Houston, Tex. Sweeping Compound Mnfrs. Co., 421 Broome St., N. Y. Tesco Chem. Co., P. O. Box 4748, Atlanta Uncle Sam Chemical Co., 573 W. 131st St., N. Y. C. U. S. Sanitary Specialties Corp., 435 S. Western Ave. U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago

SYNTHETIC DETERGENTS (see Detergents, Synthetic)

SYNTHETIC INSECTICIDE CONCENTRATES (see Insecticide Concentrates, Synthetic)

SYNTHETIC WAXES (see Waxes, Synthetic)

American Cyanamid & Chem. Corp., 30 Rockefeller, Plaza, N. Y.
Binney & Smith Co., 41 E. 42nd St., N. Y.
Blue Ridge Talc Co., Henry, Va.
Chas. B. Chrystal Co., 53 Park Pl., N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago E. I. du Pont de Nemours Co., Wilmington, Del. Eastern Magnesia Talc Co., Burlington, Vt.
Enco Chem. Corp., 441 Lexington Ave., N. Y.
Fezandie & Sperrle, 205 Fulton St., N. Y.
Georgia Talc Co., Asheville, N. C.
Goris & Co., 8124 S. Hoyne Ave., Chicago K. F. Griffiths & Co., 110 E. 42nd St., N. Y.
Hammill & Gillespie, 225 Broadway, N. Y.
Hercules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Los Angeles Talc Co., Los Angeles, Cal.
Natura Minerals Co., 108 W. 6th St., Los Angeles
Orbis Products Corp., 215 Pearl St., N. Y.
Pacific Coast Talc Co., Los Angeles, Cal.
R. F. Revson Co., 144 W. 18th St., N. Y.
James H. Rhodes & Co., 157 W. Hubbard St., Chicago H. H. Rosenthal Co., 25 E. 26th St., N. Y.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
F. E. Schundler & Co., Joliet, Ill.
A. E. Starkie, 5461 W. Division St., Chicago
Tamms Silica Co., 230 Park Ave., N. Y.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
Witto Chemical Co., 295 Madison Ave., N. Y.
Wyodak Chemical Co., 260 W. Broadway, N. Y.

#### TALL OIL (TALLOL)

Champion Paper & Fibre Co., Canton, North Carolina Industrial Chem. Sales Div., West Va. Pulp & Paper Co. 230 Park Ave., N. Y. Chas. L. Read & Co., 120 Greenwich St., N. Y. Saltcake Sales Corp., 230 Park Ave., N. Y. Union Bag & Paper Corp., 233 Bdway, New York Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

#### TALLOW

(see also Brokers and Dealers)

Armour & Co., 1355 W. 31st St., Chicago Belleville Rendering Co., Belleville, Ill. Consolidated Rendering Co., 178 Atlantic Ave., Boston Cudahy Packing Co., 111 W. Monroe St., Chicago Darling & Co., 4201 S. Ashland Ave., Chicago Eastern Industries, Inc., Ridgefield, N. J. Otto A. C. Hagen Corp., Public Ledger Bldg., Phila. Independent Mfg. Co., 29 Bridgewater St., Brooklyn Louisville Butchers' Hide & Tallow Co., Louisville, Ky. Newman Tallow & Soap Mach. Co., 1051 W. 35th, Chicago Willibald Schaefer Co., Foot of Bremen Ave., St. Louis Werner G. Smith Co., 2191 W. 110th St., Cleveland Armour & Co., 1355 W. 31st St., Chicago

Swift & Co., Union Stock Yards, Chicago Theobald Industries, Kearny, N. J. Toledo Tallow Co., Toledo, Ohio Waltham Tallow Co., Waltham, Mass. Wayne Soap Co., Detroit Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y. Wilson & Co., Union Stock Yards, Chicago Wilson-Martin Co., Swanson St., Phila.

#### TALLOW CHIP SOAP (see Chip Soaps)

#### TALLOW OIL

(see also Brokers and Dealers)

Armour & Co., 1355 W. 31st St., Chicago
Consolidated Rendering Co., 40 N. Market St., Boston
Cudahy Packing Co., 111 W. Monroe St., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Independent Mfg. Co., Bridesburg, P. O., Phila
Swift & Co., Union Stock Yards, Chicago
Toledo Tallow Co., Toledo, Ohio
Waltham Tallow Co., Waltham, Mass.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
West Coast Fert. & Rendering Co., Los Angeles
Wilson & Co., Union Stock Yards, Chicago

#### TANKS (Glass Lined Mixing and Storage)

Alsop Engineering Corp., 100 High St., Milldale, Conn. Consolidated Products Co., 15 Park Row, N. Y. (Used) Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y. Ertel Engineering Co., Kingston, N. Y. Filter Paper Co., 57 E. 24th St., Chicago First Machy. Corp., 819 E. 9th St., N. Y. (Used) Littleford Bros., 453 E. Pearl St., Cincinnati Metal Glass Products Corp., Belding, Mich. Mixing Equipment Co., 1067 Garson Ave., Rochester Newman Tallow & Soap Mach. Co., 1051 W. 35th, Chicago Pfaudler Co., 89 East Ave., Rochester, N. Y. Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Scientific Filter Co., 1 Franklin Sq., N. Y.
Sprout, Waldron & Co., Muncy, Pa.
Stein Equipment Corp., 426 Broome St., N. Y. (Used)

#### TANKS (for Liquid Soap Dispensing Systems)

Ampion Corp., 4-88—Forty-seventh Ave., L. I. City, N. Y. Bobrick Mfg. Corp., 2619 Santa Fe Ave., Los Angeles Brighton Copper Works, 2163 Western Ave., Cincinnati Clifton Chemical Co., 247 Front St., N. Y. Eagle Soap Corp., Huntington, Ind. Fuld Bros., Inc., 702 S. Wolfe St., Baltimore R. M. Hollingshead Corp., Camden, N. J. Imperial Brass Mfg Co., 1200 W. Harrison St., Chicago Palmer Products, Inc., Waukesha, Wisc. Rochester Germicide Co., Rochester, N. Y. John Trageser Steam Copper Works, Grand Ave., Maspeth, L. I., N. Y. U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago West Disinfecting Co., Long Island City, N. Y.

#### TANKS (Steel, Mixing, Storage, etc.)

Alloy Prods, Corp., 221 Madison St., Waukesha, Wis. Alsop Engineering Corp., 100 High St., Milldale, Conn. S. F. Bowser & Co., Ft. Wayne, Ind. Consolidated Prods. Co., 15 Park Row, N. Y. (Used) J. H. Day Co., 1144 Harrison Ave., Cincinnati Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y. Filter Paper Co., 57 E. 24th St., Chicago First Machy. Corp., 819 E. 9th St., N. Y. (Used) William Garrigue & Co., 9 S. Clinton St., Chicago General American Transportation Corp., 135 S. LaSalle St., Chicago St., Chicago St., Chicago
Graver Tank & Mfg. Corp., 332 S. Michigan, Chicago
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
Illinois Steel Corp., 208 S. LaSalle St., Chicago
Lancaster Iron Works, 564 S. Prince St., Lancaster, Pa.
J. M. Lehmann Co., Lyndhurst, N. J.
Littleford Bros., 453 E. Pearl St., Cincinnati
Lukens Steel Corp., Coatesville, Pa.
Mixing Equipment Co., 1067 Garson Ave., Rochester

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PINE OIL DISINFECTANTS

PHENOLIC DISINFECTANTS

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HOSPITAL SINFECTANTS

WOOD PRESERVING OILS

INSECTICIDE CONCENTRALE

CATTLE SPEAT CONCENTRATE

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#### TANKS (Steel Mixing and Storage) (Contd.)

Newman Tallow & Soap Mach. Co., 1051 W. 35th St., Chicago (Used)
Patterson Foundry & Machine Co., East Liverpool, Ohio Patterson-Kelley Co., East Stroudsburg, Pa.
Petroleum Iron Works, Sharon, Pa.
Pfaudler Co., Rochester, N. Y.
Pioneer Tank & Boiler Co., Tulsa, Okla.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh Read Machy Co., York, Pa.
Sprout, Waldron & Co., Muncy, Pa.
Stein Equipment Corp., 426 Broome St., N. Y. (Used) Struthers-Wells-Titusville Corp., Warren, Pa.
John Trageser Steam Copper Works, Grand St.,
Maspeth, L. I., N. Y.

#### TANKS (Wooden, Mixing, Storage, etc.)

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(see also Essential Oils)

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(see also Essential Oils)

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Mathieson Alkali Co., 60 E. 42nd St., N. Y.

Monsanto Chem. Co., St. Louis

Permutit Co., 330 W. 42nd St., N. Y.

Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh

Port Huron Detergent Co., Port Huron, Mich.

Procter & Gamble Co., Cincinnati

Richards Sales Corp., Jersey City, N. J.

Theo. B. Robertson Prods. Co., 700 W. Division St.,

Chicago Chicago Chicago Shores Co., Cedar Rapids, Ia. Skotch Prods. Corp., 2710 Detroit Ave., Cleveland Solvay Sales Corp., 40 Rector St., N. Y. Westvaco Chlorine Prods. Co., 405 Lexington Ave., N. Y.

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Allied Asphalt & Mineral Corp., 217 Broadway, N. Y. American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y. Avon Trading Co., 401 Bdway., N. Y. E. A. Bromund Co., 256 Broadway, N. Y.

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y. T. G. Cooper & Co., 47 N. 2nd St., Phila. Cornelius Prods. Co., 432 4th Ave., N. Y. Wm. Diehl & Co., 336 W. 42nd St., N. Y. 18 Distributing & Trading Co., 444 Madison Ave., N. Y. A. C. Drury & Co., 219 East North Water St., Chicago Innis, Speiden & Co., 117 Liberty St., N. Y. International Wax Refining Co., 4415—3rd Ave., B'klyn W. & A. Leaman, 17 State St., N. Y. Lenape Trading Co., 233 Broadway, N. Y. George H. Lincks, 155 John St., N. Y. Muench-Kreuzer Candle Co., Sy:acuse, N. Y. Neumann-Buslee & Wolfe, 224 W. Huron St., Chicago Orbis Products Corp., 215 Pearl St., N. Y. S. B. Penick & Co., 50 Church St., N. Y. R. J. Prentiss & Co., 80 John St., N. Y. R. J. Prentiss & Co., 80 John St., N. Y. R. J. Prentiss & Co., 144 W. 18th St., N. Y. James H. Rhodes & Co., 157 W. Hubbard St., Chicago H. H. Rosenthal Co., 25 E. 26th St., N. Y. Frank B. Ross Co., 507—3th St., Hoboken, N. J. L. A. Saiomon & Bro., 216 Pearl St., N. Y. William H. Scheel, Inc., 38 Franklin St., Bklyn. Standard Oil Co., (Calif.), 225 Bush St., San Francisco A. E. Starkie, 5461 W. Division St., Chicago F. W. Steadman Co., 59 Pearl St., N. Y. Strahl & Pitsch, 141 Front St., N. Y. Strahl & Pitsch, 141 Front St., N. Y. Twin City Shellac Co., 340 Flushing Ave., Brooklyn Warwick Chem. Co., W. Warwick, R. I. Will & Baumer Candle Co., Syracuse, N. Y. WAXES, Floor and Polishing (see Floor Waxes)

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National Oil Products Co., Harrison, N. J.
Wm. H. Scheel, Inc., 38 Franklyn St., Bklyn., 22
Sherwood Refining Co., Englewood, N. J.
F. W. Steadman Co., 59 Pearl St., N. Y.
Strahl & Pitsch, 141 Front St., N. Y.
Van Dyk & Co., Belleville, N. J.

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S. Howes Co., Silver Creek, N. Y.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Pneumatic Scale Corp., North Quincy, Mass.
Read Machy. Co., York, Pa.
F. J. Stokes Machine Co., Phila, Pa.
Stokes & Smith Co., 4915 Summerdale Ave., Phila.
Triangle Package Machinery Co., 906 N. Spaulding Ave.,
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Vol-U-Meter Co., 710 Ohio St., Buffalo, N. Y.
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## New Scope



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1945 BLUE BOOK

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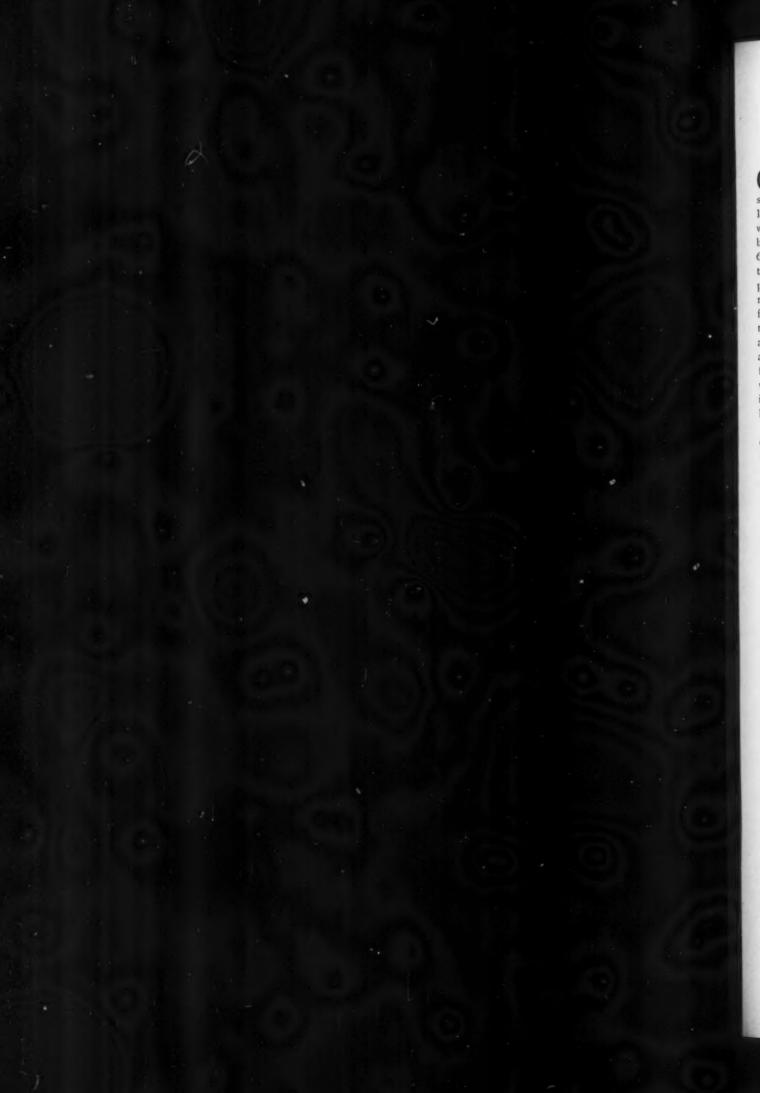
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315 Fourth Avenue

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GRamercy 5-3200





## 1944 Soap Fat and Oil Use

ONSUMPTION of primary fats and oils in the soap kettle showed a gain of approximately 171/2 per cent in 1944 as compared with the previous year, the total use by the industry aggregating 2,001,-611,000 lbs. This consumption total has been exceeded in only one previous year, - 1941 - when the record total of 2,143,857,000 lbs. of fats and oils went into soap production. The above figures, incidentally, are for primary fats and oils only, and do not reflect consumption of foots and fatty acids by soap makers which have been at an annual level in the neighborhood of 200,000,000 lbs. in recent years.

Over half of the tremendous consumption of fats in the soap kettle during 1944 was represented by inedible tallow, of which 1,005,777,-000 lbs. were used. This represented a substantial increase from the 884,862,000 lbs. of tallow which went into soap during 1943. Incidentally soap makers used all but 205,000,000 lbs. of the country's entire tallow output during 1944. In addition to the more than a billion pounds of inedible tallow, soap makers also used 43,761,000 lbs. of edible tallow during 1944, a substantial increase over the 1943 figure of 4,652,000 lbs.

The second most important soap raw material during 1944 was grease, of which 523,972,000 lbs. went into soap out of a total national production of 712,089,000 lbs. This figure also represented a gain as compared with consumption during 1943, when 463,811,000 lbs. of grease went into the soap kettle.

Third largest in the list of soap raw materials during 1944 was lard, of which 176,266,000 lbs. were used in soap. This was a very substantial share of the country's total production of lard which was 243,-738,000 lbs. It also represented quite an increase over 1943 consumption, during which year 74,039,000 lbs. of lard went into soap manufac-

Fourth in the list of soap oils during 1944 was coconut. Consumption of crude coconut oil was 80,057,000 lbs. and of refined coconut oil, 51,501,000 lbs. This represents a moderate drop from 1943 figures as during that year total consumption of crude and refined coconut oil aggregated 142,346,000

Of the country's total 1944 fish oil output of 189,895,000 lbs. some 50,891,000 lbs. went into soaps. This represented a substantial gain over 1943 when soapers' consumption of fish oils was only 44,488,000 lbs. Other important changes in the

soap fat and oil picture included a substantial drop in use of soybean oil by the soap trade during 1944, a continuation of the declining trend in palm oil use, and a further drop in the consumption of babassu oil and olive oil foots by soap makers. A slight increase was noted in use of linseed oil for soap manufacture, but the industry's total 1944 use was still only 2,253,000 lbs.

Castor oil showed a substantial increase in use in 1944. Some 17,360,000 lbs. of castor went into the soap kettle in 1944, as compared with only a little over a million pounds the previous year.

1944

#### FACTORY CONSUMPTION OF ANIMAL AND VEGETABLE FATS AND OILS IN THE MANUFACTURE OF SOAP

Source: U. S. Department of Commerce Bureau of the Census (Quantities in thousands of pounds) Kind 1939 1940 1941 1942 (Prelimi-

						nary)
Cotton oil	1,061	2,971	3,010	2,863	991	586
Peanut oil	805	387	597	485	256	564
Coconut oil	388,912	398,857	484,124	140,487	142,346	131,558
Corn oil	4,441	3,638	4,948	4,102	833	887
Soybean oil	11,177	17,612	24,737	31,510	15,428	3,258
Olive edible	54	130	84	27	11	83
Olive ined	1,439	1,637	555	365	499	337
Olive foots	19,068	14,948	10,029	4,823	4,987	2,619
Palm oil	102,146	84,934	129,871	55,865	32,621	19,675
Palm kernel	3,657	197	1,113	1,028	1,840	1,938
Rapseed oil	2	49	5		1	
Linseed oil	1,780	1,489	2,278	4,019	1,697	2,253
Perilla oil	1	****		****		
Castor oil	946	1,225	1,976	7,949	1,091	17,360
Sesame oil	14	38	304	189	65	
Babassu oil	37,633	41,221	29,753	19,105	25,814	13,006
Other veg	7,364	2,051	1,162	2,487	675	3,164
Lard	50	645	89	96	74,039	176,266
Stearin	278	549	70	483	275	211
Oleo oil	67	127	189	205	2,160	3,243
Tallow, ed	. 418	657	4,826	634	4,652	43,761
Tallow ined	785,041	786,456	1,057,303	1,188,923	884,862	1,005,777
Grease	120,856	256,886	310,487	338,974	463,811	523,972
Neat's foot	11	19	35	19	68	9
Marine oils	51,522	19,250	6,889	21,989	284	9
Fish oils	114,961	88,661	69,423	50,412	44,688	50,891
Total	1,653,704	1,722,634	2,143,857	1,871,039	1,703,994	2,001,611



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## Soap Sales Statistics

SOAP sales in the American market set new highs, both in terms of dollars and pounds in the year 1944, according to figures compiled by the Association of American Soap and Glycerine Producers, based on reports from approximately seventy of their members. Total sales for the year amounted to 3,291,356,000 lbs., worth \$442,857,000. This represented a gain of 16% in pounds and 18% in dollars over the 1943 figures.

Sales reached their highest volume for the year in the fourth quarter when 859,933,000 lbs. were sold, this being the third largest quarter the industry has ever had on a volume basis, exceeded only by the totals for the second quarter of 1941 and the first quarter of 1942. On a dollar basis the gain over previous figures was even more impressive. Each quarter totaled well over one hundred million dollars in soap sales, and starting with the second quarter each quarter during the year established a new record high. The fourth quarter figure of \$116,017,000 compares with a 1943 fourth quarter total of \$102,500,000.

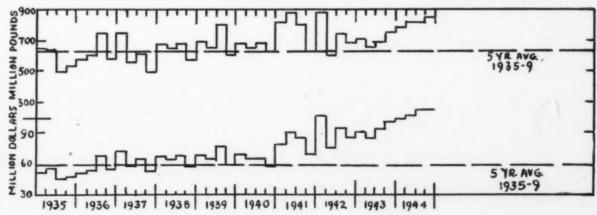
Turning back to some more remote comparisons, the 1944 sales represent a gain of 120% over the dollar sales total for 1935, when the value of the industry's product was only \$202,056,000. As compared with 1940, when the industry's dollar sales total was \$259,201,000, the gain, percentagewise, has been 70%.

			of dollars)	1020	1010
1. 0	1935	1936	1937	1938	1939
lst Quarter		51,270	72,582	67,113	68,327
2nd Quarter		54,363	58,337	64,311	64,719
3rd Quarter		67,680	65,120	67,874	77,781
4th Quarter	47,869	55,299	52,585	57,371	59,056
Total	202,056	228,612	248,624	256,669	269,883
	1940	1941	1942	1943	1944
lst Quarter	69.134	79,276	107,381	91,044	105,021
2nd Quarter	65,423	90,613	76,300	84,974	109,059
3rd Quarter		85,903	94,608	95,077	112,760
Ith Quarter		70,295	85,734	102,500	116,017
Total	259,201	326,087	364,023	373,595	442,857
	SALES	IN POUNI	OS (thousa	nds)	1
	1940	1941	1942	1943	1944
st Quarter	682,789	819,226	895,928	714,235	788,664
2nd Quarter	644,781	890,128	601,776	654,781	825,789
3rd Quarter		803,762	744,501	699,461	816,970
th Quarter		625,145	687,377	757,887	859,933
Total	2 646 240	3,138,261	2,929,582	2.826,364	3,291,356

On a basis of poundage comparison, the volume of the industry's sales has increased only about 24% from the 1940 total of 2,646,240,000 lbs. This tendency of dollar figures to far outstrip the gains that have been made in pounds reflects some of the price increases that have taken place since the pre-war period. It would also seem to indicate that with a smaller volume of rationed fats and oils available to them, soap makers have tended to put such stocks of fats and oils as given them into better quality and higher priced products.

The volume of liquid soap sales is reported separately on a gallonage basis, although the dollar

totals are reflected in the general industry compilations referred to above. Reporting concerns (41) indicated sale of 3,774,414 gallons of liquid soap, for a total of \$4,288,688 during 1944. This compares with 4,069,178 gallons worth \$3,818,866, which were the sales totals for 1943. Although 1944 figures represent a decline in volume of liquid soap sales of approximately 300,000 gallons, the sales dollars mounted almost \$470,000. Again this rather unusual swing would seem to reflect a tendency of soap makers to put their limited stocks of soap making fats and oils into better quality and higher priced products.



1945 BLUE BOOK

## Post-War Soap Outlook\*

PPERMOST in the minds of all industries is the question as to the effect of cessation of hostilities on the demands for their products. Before speculating on post war soap sales prospects, it is well to consider the effect that the war has had on the industry to date. The data given in Table I on the production of soap by classes and in Table II on the consumption of fats serve as a basis on which the effects of the war may be measured. In evaluating the data, it is necessary to decide what might be considered a normal year. Nineteen hundred and forty-one was the largest year in fat consumption by soap makers prior to the war, but consumption of fats and sales of soap were largely influenced by the imminence of the war and rising prices. Consequently, it is probably safe to assume that 1941 production of soap was not a measure of the consumption. The previous year, 1940, also included some speculative buying and production for inventory. However, this was less marked than in 1941 and 1940 is probably the most nearly "normal year" available.

Unfortunately there are no soap production figures for 1940. However, the primary fats consumed for soap making in 1940 as reported to the Bureau of Census were 1,723 million pounds. It has been estimated that an additional 128 million pounds of secondary fats, including foots and fatty acids, were also consumed, making a total of about 1,851 million pounds of fats. If the premise is accepted that 1940 was a normal year, then any increase over the fat consumption of that year may be attributed directly or indirectly to the war.

The soap fat consumption during the first nine months of 1944

was 1,475 million pounds of primary fats and approximately 236 million pounds of secondary fats so that the estimate for the year 1944 is about 1,967 million pounds of primary fats and 315 million pounds of secondary, a total of 2,282 million pounds or 431 million pounds above 1940. Of the 2.282 million pounds estimated for 1944, 1,570 million were probably used for civilian package and bar soap, 270 for bulk industrial products and 200 for synthetic rubber, textiles and various miscellaneous non-detergent uses, making a total for civilian use of 2,040 million pounds. The balance of 242 million pounds went, we can assume, to the armed forces, lend-lease and relief.

The question is, where has the increase occurred during the war years which is likely to be maintained? The fat consumed for package and bar soap for civilian use has been subject to quotas and is currently at 80 per cent of the base years, 1940-1941, a reduction from the 90 per cent figure which applied during 1944.

The bulk quota is currently at 90 per cent of the base years, somewhat of a decline from the level of production permitted the industry during 1944. It is probable that this consumption will drop to somewhere in the neighborhood of 200 million to 225 million pounds as soon as the increased load on commercial laundries drops to normal. Of the remaining 200 million pounds of fat assigned to civilian soap, approximately 100 million pounds is for the synthetic rubber program and so long as the production of GR-S rubber continues, this quantity of soap will probably be needed. The consumption for textiles is probably somewhat higher than normal, due to the large amount of processing of military textiles. It is likely that this quantity will drop off by 25 to

35 million pounds as soon as the military demands lessen. The miscellaneous non-detergent uses such as wire drawing, shell drawing, metal working compounds and the like probably will not be affected for some time since the civilian demand for products made by the same processes is likely to be heavy. Consequently it is doubtful that the total use of fats for rubber, textiles and other miscellaneous uses will decrease much more than 25 to 35 millions pounds.

The next big question is the size of the military and relief requirements. When the European phase of the war is over, there will probably be some reduction in the armed forces, but it is also probable that demobilization will be slow and the military requirements are likely to continue for some time at nearly their present levels.

The relief requirements are, of course, a big question mark and all sorts of astronomical figures have been mentioned in connection with them. However, it should be recalled that the pre-war consumption of soap in most of the European countries was rather low and during the war the availability and kind of soap has been such as to discourage its use in any substantial quantities. Consequently, the soap habit has probably received something of a set-back. Since it is to the interest of provisional governments to find work for the citizens, it is probable that strong efforts will be made to produce soap domestically as soon as possible. Furthermore, with the strong desire on the part of South America and the British Empire for world trade, it is doubtful that any heavy continuing demand on the United States will be made from Europe.

In view of the recent reduction in quotas of oils and fats which

<sup>\*</sup> Based on an article by C. W. Lenth in the Dec., 1944 issue of Soap and Sanitary Chemicals.

soap makers are permitted to use, it is probable that 1945 will see a decline from the 2,282 million pounds of fat converted into soap during 1944. As for the more distant future, this will probably drop off to about 2,000 million pounds of total fats as soon as the armed forces and relief requirements are satisfied.

So far the discussion has been based on fat consumption, without mention of the types of soap likely to be produced. The data in Table 1 show the trends in the various classes of soap-for example, toilet soap production for 1944 was estimated at approximately 100 million pounds above the 1939 level. There are several reasons for this increase and among them are first, that higher consumer income results in a switch from cheaper types of soap to toilet soap and; second, the fact that included in this figure are large quantities of soap for the armed forces such as Navy salt water soap, all-purpose soap and the requirements of the Post Exchanges and Ship's Service Stores. It is probable, that the production of toilet soap will in the post-war period decline somewhat and level off to between 400 and 450 million pounds.

BAR laundry soaps have both declined in production,-white laundry because of the shortage of coconut oil and the yellow, because of man-power problems, disadvantageous price ceilings, and the trend in consumer demand as a result of higher incomes from the cheaper grades of soap to the better grades. The production of granulated, powdered and sprayed soaps has shown a marked increase, approximately 400 million pounds. Some of this is, of course, at the expense of chips and flakes, but it is primarily attributable to consumer demand and the fact that some washing machines are designed for the exclusive use of this type of soap. It is probable that this production will continue and perhaps expand when the current pressing demand for new washing machines is satisfied.

The production of packaged soap chips and flakes has decreased somewhat since 1939, partly as a result of the trend to granulated soaps and also to the disappearance from the market of highly built coconut oil flakes which were popular during the depression years. The increase in bulk flakes is almost entirely attributable to the synthetic rubber program and as mentioned above so long as this program continues, this soap requirement will be maintained. There is, however, experimentation on non-soap emulsifiers and it is possible that in the post-war years some, if not all, of the requirements for the rubber industry will be met by some of these new products in place of soap.

Packaged washing powder production has increased substantially, due almost entirely to the requirements of the Navy. The continuing requirements for this material are dependent on the policy followed by the Navy. If the Navy is maintained at its present strength in active service, it is probable that the present quantity will be required. However,, if some portion of the Navy is decommissioned after the

Japanese war ends, a proportionately smaller quantity will be needed. It is impossible at this time to guess which policy will be adopted.

Of the remaining items in Table I the only ones showing a substantial increase are shaving soaps and textile soaps. Production of shaving soaps has increased primarily because of the demands by the armed forces, and while the same number of men will be a portion of the civilian population in post war years, it is doubtful that they will continue to shave as regularly as they are now required to do. Consequently it is likely that the demand for shaving soaps will decline to perhaps 75 per cent of its present level.

The increase in textile soaps has been discussed above and as mentioned there, it is likely that the demand will drop off with the reduction in textile requirements for the armed forces.

Production of potash soaps, including liquid, has increased during the war and since this increase is a result of increased industrial activity it is probable that the demand for these soaps will decline some-

TABLE I
Production of Soap by Classes
(Million Pounds)

	1944 (Est.)	1939	1937	1935
Bar soap				
Toilet	500	409.1	360.6	353.0
Laundry				
White	575	660.7	489.0	420.5
Yellow	550	578.8	633.4	713.5
Granulated, powdered and sprayed soaps	1,322	892.7	743.2	503.1
Soap chips and flakes				
Packaged	200	284.3	274.3	307.3
Bulk	250	134.3	116.2	151.7
Washing powder				
Packaged	200	131.8	146.9	132.7
Bulk	70	110.4	85.5	86.4
Cleansers and scouring powders containing soap				
Packaged	180	167.4	157.0	196.2
Bulk	20	18.7	21.3	37.4
Shaving soaps				
Stick, powder and cake	10	5.6	5.1	6.2
Cream (soap base)	15	7.9	9.6	6.7
Liquid soap, not including packaged shampoos	50	42.8	29.9	22.6
Soap stick or soap base	2	4.4	4.5	3.7
Bar cleansers	10	5.0	5.4	9.9
Hand pastes	25	17.9	16.9	14.2
Textile soap	90	62.5	60.7	70.1
Potash soap, other than textile and liquid	35	31.0	25.1	20.8

Source: 1935 through 1939 from Census of Manufactures-U. S. Dept. of Com.

Note: White floating soap is included in toilet bar and white laundry bar.

TABLE II

Consumption of Soap Fats
(Million Pounds)

		rimary Fats ır. of Census)	Secondary Fats (Est.)	Total
1939		1654	124	1778
1940	***********	1723	128	1851
1941	**********	2144	147	2291
1942		1871	164	2035
1943	*********	1704	292	1996
1944		2001	330	23314

\*These late figures on 1944 fat consumption will be found to be somewhat higher than the preliminary estimates referred to on pages 158 and 159. The final figures were received too late to correct the other two pages.

what with closing of war plants. This industry has been particularly hard hit by the shortage of coconut oil and it is possible that there has been some movement away from potash soaps because of this difficulty. Whether this market can be recaptured, is not clear. Shampoos which belong in this class of soap have already felt the inroads of synthetic detergents and it is probable that this competition will increase.

THE possibility of synthetic detergents entering the post-war picture in a bigger way is a factor which bears on the demand for soap of all kinds. Packaged synthetic detergents were on the market for several years prior to the war and achieved considerable popularity in the hard water areas for fine fabric use. It is quite likely that these and similar products will enjoy some increase in sales at the expense of fine fabric soaps. Synthetic detergents have already entered the textile field and for certain operations are preferred over soap, and there is no doubt that their use will be extended in this field.

As to the position of synthetic detergents in the general household field, it is difficult to make accurate predictions at this time. The Army and Navy have so-called all-purpose soaps containing synthetic detergents and find them quite valuable under the conditions met by the armed forces. Whether the consumer will find a need for soaps of this type is questionable. There is certainly no need for this type of soap in soft water areas and what volume will be

required for hard water areas is difficult to estimate particularly since many towns have installed or are considering the installation of water softening plants. There has always been a market for hard water and salt water soaps and it is entirely possible that some modification of all-purpose type soap may supplant soaps formerly sold in these territories providing the price is satisfactory. It must be remembered, however, that the old-fashioned hard-water and salt-water soaps were made from coconut oil and if the price of coconut oil declines to pre-war levels, it will be very difficult for synthetic detergents at their current prices to compete.

Summarizing the outlook for synthetic detergents, it appears that there may be some increase in their consumption, but that price is a strong factor in their success. It must be recalled that soap fats of domestic origin are primarily byproducts from the slaughtering industry and as such under ordinary conditions are priced in accordance with demand for soap making. On the other hand, synthetic detergents are manufactured products from raw materials which have their prices regulated by demands from many other industries and consequently are not potentially strongly competitive with soap fats. It is probably safe to say that while the consumption of synthetic detergents will increase, it is doubtful that they will at their present stage of development make serious inroads on the market for soap.

N attempting to balance the various factors involved in predicting the trend in the soap industry, it appears that there is likely to be between 5 per cent and 10 per cent reduction in the production of civilian soaps soon after the war ends. However, the exact time at which this reduction will occur is difficult to foresee since the stocks of soaps in trade channels are still below normal and there are still some trouble spots in the country where real shortages exist. There does not seem to be much chance of completely eliminating these trouble spots during the war. Until the trade stocks have been built up to some semblance of normal, it is probable that consumer demand, not necessarily consumption, will continue at substantially the present

It has been stated that on V-E Day approximately 40 per cent of the war contracts will be canceled. If this occurs there will undoubtedly be some unemployment or at least a marked reduction in overtime. With lower employment levels the need for soap will be decreased, as the heavy laundering of work clothes will decrease proportionately to the decrease in employment.

On the other side of the picture is the fact that with the war years' higher consumer income, many people have revived habits of cleanliness which they had lost during the depression, and others have had new standards of cleanliness forced on them by the armed forces or by the medical departments of war plants. It is doubtful that all of these gains will be lost in the immediate post-war years. Furthermore, the population has increased from 133 million in 1940 to 138 million in 1945. Consequently it is believed that the above estimate of 2,000 million pounds of soap fats per year is a conservative estimate of post-war needs of the soap industry, providing a reasonable level of employment is maintained.

## Glycerine Outlook\*

THE outlook for glycerine is, of course, dependent on the soap outlook and the consumption of both soap and glycerine is related to the level of industrial activity. However of the two glycerine consumption parallels industrial activity more closely and to some extent anticipates it, so that it has been suggested as a barometer for industrial activity. Since there seems to be fairly general agreement that following a short period of reconversion, a high level of industrial activity will obtain for several years after the war, the production and consumption of soap is likely to be high and the production and consumption of glycerine will likewise be high.

The rate of consumption of soap fats immediately following the war, the writer estimates will be in the neighborhood of 2 billion pounds per year. It is likely that with a high level of industrial activity this consumption of soap fat will increase partly as a result of high consumer incomes and also because of the trend in recent years to the manufacture of soap of high fat content.

Glycerine is not only a byproduct of soap manufacture, but also a by-product of fatty acid manufacture and the production of fatty acids has increased substantially since prewar years. There are no accurate data on the quantities of fat split in prewar years, but it is probable that the fat consumed in the manufacture of fatty acids was in the neighborhood of 100 to 125 million pounds per year in the years immediately preceding the war. Data on the fat consumption during the last half of 1942 to date show that there has been a steady increase from a rate of approximately 160 million pounds per year in 1942 to 300 million pounds per year in 1944. Members of the industry believe that the present rate of approximately 300 million pounds of primary fats per year is likely to continue.

It is probable that the primary fats consumption for soap in 1945 will be in the neighborhood of 2 billion pounds and 300 million pounds split into fatty acids, with the result that between 195 and 200 million pounds of glycerine are likely to be produced in 1945.† This relatively high level is likely to decrease in 1946 as the demand for soap for European relief is reduced, and consequently it is estimated that with 1.8 billion pounds of soap fats and 300 million pounds of fats split, glycerine production will approximate 180 million pounds.

In the years following, some members of the soap industry believe that the fats consumed for soap making may rise to as much as 2.4 billion pounds, which together with the fats used for making fatty acids could result in a production of about 230 million pounds of glycerine. This high level of production of glycerine is, of course, predicated on the assumption that there is a sufficient demand to maintain values which warrant its recovery.

### Consumption of Glycerine

Consumption of glycerine in some 40 different classes of use is shown in the accompanying tables and the data will serve as a basis on which estimates may be made with respect to future consumption.

### Pharmaceuticals

The consumption of glycerine in pharmaceuticals in 1940 was approximately 8.9 million pounds and 10.9 million pounds in 1941. It is doubtful that this level will be substantially increased in the post war years particularly since there have been some inroads by substitutes in

† This compares with production for 1944 of 199.8 million pounds.

this industry and it is likely that some of these substitutes will enjoy a permanent market in this field. Consequently it is probably safe to assume that approximately 10 millions pounds will be consumed by the pharmaceutical industry.

### **Explosives**

Consumption of glycerine in explosives was 22.6 million pounds in 1940 and 30.6 million pounds in 1941. These figures, of course, include the nitroglycerine consumed in the manufacture of smokeless powder and other military explosives. In post war years this consumption will be practically non-existent, but due to the requirements for reconstruction, road building and gold mining it is likely that the production of dynamite will reach a high level with the result that as much as 30 million pounds of glycerine may be consumed in this field.

### Resins

The consumption of glycerine in the manufacture of synthetic resins in 1940 was 21.6 million pounds and 29.7 million pounds in 1941. The principal use for glycerine in this field is the manufacture of alkyd resins prepared from glycerine, phthalic anhydride and vegetable oils. The production of alkyd resins showed a steady growth in the pre war years and through 1943 when a production of 154 million pounds was reached. This quantity of alkyd resin required about 35 million pounds of glycerine. However, early in 1944 new military requirements for phthalic anhydride for insect repellents and plasticizers for explosives required the curtailment of the quantity available for alkyd resins so that probably not much more than 20 million pounds of glycerine could be used. The production capacity for phthalic anhydride is being increased and is expected to reach 168 million pounds

<sup>\*</sup> Based on an article by C. W. Lenth in the Feb., 1945 issue of Soap and Sanitary Chemicals.

Glycerine: Apparent domestic disappearance consumption, shipments, and allocations, 1940-44

						19	43		
Item	1940	1941	1942	First quarter	Second quarter	Third quarter	Fourth quarter	Total	1944 estimated
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
		Disap	pearance, a	llocations,	and consu	mption or	shipments		
Apparent domestic disappearance  Total quantity specifically allocated	151,805	206,578	153,369	28,158	30,310	29,570	43,523	131,561	
under FDO-34	****		****	33,542	35,626	35,380	56,799	161,347	100 150
Small orders and resale <sup>3</sup>	140,359 14,309	175,135 18,022	166,350 7,755	27,394 2,717	30,537 2,621	29,897 2,129	45,103 2,308	132,931 9,775	199,150
Shipments against specific alloca- cations <sup>4</sup>	****	***	****	24,677 Pct.	27,916 Pct.	27,768 Pct.	42,795 Pct.	123,156 Pct.	
Percentage of specific allocations taken				73.6	78.4	78.5	75.3	76.3	

Consumption and allocations by class of use

	rep	orted cons	umption			Allocations		-	stimated nsumption
				1,000 <i>lb</i> .	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	
Drugs and pharmaceuticals	8,885	10,874	9,304	2,162	2,301	2,003	3,332	9,798	10,750
Dynamite and nitroglycerine	22,586	30,624	36,445	9,314	10,543	8,642	12,418	40,917	40,000
Synthetic resins and ester gum	27,723	40,234	41,863	9,559	12,886	13,112	16,931	52,488	45,000
Rubber processing	1,397	1,802	1,200	277	363	408	452	1,500	1,500
Gaskets and cork products	6,030	8,019	8,638	1.816	1,684	1,600	3,272	8,372	10,000
Cellulose films and meat casings	18,483	18,973	15,946	2,217	2,492	2,875	4,317	11,901	19,000
Glassine, greaseproof and vegetable				~,~	-, -,-	4,000	4,021	11,701	12,000
parchment	1,598	2,008	1,511	803	538	643	781	2,765	3,000
Printers' rollers and supplies	4,256	5,047	5,169	901	1,098	976	1,470	4,445	5,000
Textile processing	2,321	2,827	1,928	586	525	511	620	2,242	2,500
eather products	371	472	513	129	287	28	114	558	400
Adhesives	2,453	2,871	2,304	469	466	549	686	2,170	2,500
Paper other than glassine and grease-	-,	-,	_,_,_,	102	100	042	000	2,110	2,000
proof	1,056	1.540	1,510	175	495	744	400	1.814	1,500
Beverages, flavors, candy and gum	1,998	2,411	1,529	34			272	306	2,000
Margarine, shortening, and other	-,		-,					000	2,000
edibles	3,279	4,059	2,904	259	81	51	852	1,243	6,000
Cobacco ,	24,833	25,793	20,071	1.712			5,940	7,652	32,000
Dentifrices and toilet articles	9,204	11,313	7,567	731			2,092	2,823	10,000
Miscellaneous	3,886	6,268	7,948	2,398	1,867	3,238	2,850	10,353	8,000
Total	140,359	175,135	166,350	33,542	35,626	35,380	56,799	161,347	199,150

Disappearance and shipments on 100 per cent glycerol basis. Consumption and allocations uncorrected for grade; figures represent approximately 97.5 per cent of glycerol.

2 Computed from Department of Commerce reports on production, trade, and stocks.

2 1940-42, consumption reported by 1,234 users on War Production Board form PD-361; probably represents more than 95 per cent of total consumption. 1943, shipments reported by producers and refiners on form FDO-34-1.

2 1943, small orders reported on form FDO-34-1; other years, resale reported on form PD-361.

early in 1945 from a level of 113 million pounds in 1943. However, it is doubtful that much of this increased production of phthalic anhydride will be available for the manufacture of alkyd resins. So long as the requirements continue for phthalic anhydride for military purposes for other than protective coatings, no substantial increase in the amount allocable to the resin industry can be made. It is not likely that any substantial decrease in these requirements will occur at the end of the European War and they will undoubtedly continue for the duration of the Japanese War.

Another bottleneck in the production of alkyd resins and the consumption of glycerine in this industry is the restriction on the use of oils in the manufacture of protective coatings under WFO-42a. It is likely that restrictions on the use of fats and oils will continue at least until Philippine oils can be imported and possibly until the end of the Japanese War. Consequently until that time it is unlikely that any great expansion in the manufacture of alkyd resins will occur. However, regardless of the restriction on oils, as soon as the phthalic anhydride becomes available, it is probable that

the protective coatings industry will substantially increase its present use of glycerine to perhaps 35 million pounds per year. This level may rise when oil restrictions are lifted since the alkyd resins are still the preferred bases for the protective coatings used in the manufacture of automobiles, washing machines, refrigerators, etc.

#### Ester Gum

The consumption of glycerine in the manufacture of ester gum was 6.1 million pounds in 1940 and 10.5 million pounds in 1941. This consumption has probably increased considerably during 1944 due to the

shortage of alkyd resins. However, it is likely that as soon as alkyd resins again become available the consumption of glycerine in ester gum will drop to perhaps 10 million pounds per year.

#### Gaskets and Cork Products

The use of glycerine in mechanical gaskets and cork products has increased during the war years from 6 million pounds in 1940, 8 million pounds in 1941 to 8.6 million pounds in 1942. Many of the uses are new and it is likely that some of this gain will be retained. Consequently it is estimated that approximately 8 million pounds will be consumed in these industries annually in the post-war period.

### Rubber Processing

The consumption of glycerine in rubber processing has been relatively constant ranging from 1.4 million pounds in 1940, 1.8 million pounds in 1941 to 1.2 million pounds in 1942. There have been no substantial increases in the use of glycerine in this field and it is likely that the post war use of glycerine will average in the neighborhood of 1.5 million pounds.

### Cellulose Films and Meat Casings

The use of glycerine in cellophane and sausage casings was 18.5 million pounds in 1940 and 19 million pounds in 1941. While the production of these products is likely to increase in post war years, there has been a tendency to employ some of the glycerine substitutes in some of these products designed for specific purposes. Consequently it is doubtful that the consumption of glycerine will materially exceed 19 million pounds in the immediate post war years.

### Glassine, Grease-proof and Vegetable Parchment Papers

The consumption of glycerine in the production of glassine, greaseproof and vegetable parchment papers was 1.6 million pounds in 1940 and 2 million pounds in 1941. There has been some increase in the production capacity for these products as well as new developments in these fields and consequently it is Consumption of glycerine by classes and products, 1940 and 19411

Class of Product	1940	1941
	1,000 lb.	1,000 lb.
Uses shown separately in previous table*	136,473	168,867
Antifreeze fluids <sup>8</sup>	17	35
Electrolytic fluids4		4
Hydraulic fluids <sup>5</sup>	137	140
Coolant fluids		12
Embalming fluids	121	146
Miscellaneous fluids		6
Masking and shielding compounds*		29
Grinding compounds		20
Soldering compounds	-	64
Packing compounds <sup>40</sup>	-	50
Cement compounds <sup>a</sup>		103
Miscellaneous compounds	15	14
Lubricants <sup>13</sup>	55	107
Instrument and equipment manufacture <sup>18</sup>	46	46
Cleaning materials <sup>14</sup>	1,074	1,589
Waxes and emulsions <sup>18</sup>	50	76
Laboratory and research		15
Manufacture of chemicals <sup>16</sup>	726	1,408
Insect and microorganism control <sup>36</sup>	132	187
Miscellaneous manufactured products <sup>18</sup>	857	1,108
Decorative articles and toys 19	99	114
Unidentified	354	995
Total	140,359	175,135

Total

140,359
175,135

Compiled by Fats and Oile Branch, War Food Administration from reports by 1,234 users on War Production Board Form PD-361.
See page 162.
Automatic sprinkler systems, de-frosting for glass, de-icing, gasoline or diesel engines.
Galvanized cloth, lightning arrestor.
Door closures, air (and other) brakes, vessel launching, floor hinge liquid, recoil mechanisms.
Cutting solutions for metal working, quenching fluids for tools.
Anesthetic, sealing fluid for centrifugal pumps, dust collecting liquid, stencil correction fluid, oxidation and evaporation inhibitor.
Paint spray shield.
Vitrified grinding wheels, valve grinding and lapping, artificial polishing stones.
High pressure and temperature packings, mechanical pickings (asbestos), gasoline-resistant packings, high pressure and temperature packings.
Litharge-glycerine cement (tubs and sinks, valve repair, still and distilling unit repair, anti-acid corrosion), pipe joint cement, furnace cement, transformer cement, freight car wood patch, plastic caulking compound, rethreading compounds.
Mari brake lubricants, thread lubrication, oxygen cylinders, die lubricants, general lubricants.
Mercury action thermometers, engine gauges, electrical equipment, telemotor systems, oil refinery equipment, flexible metal hose and tubing.

Soap (milled and bar soap, liquid soap, leather and saddle soap, rug paste soap, mechanic's hand soap), synthetic detergent, and wetting agents, polishes, cleaners, dreasings.

Soptical waxes, emulsifiers, wax emulsions, industrial protective cream.
Reagent chemicals, manufacture of agrolein, manufacture of mono., di-, and triacetin, invertase, hydrogenated naphthas, naphthenate driers, reconstructed oils, basic dyes, miscellaneous chemicals. In Insecticides, bactericides, germicides, fungicides, aticky fly paper.

Analysis of the paper.
Reagent chemicals, manufacture of agrolein, manufacture of mono., di-, and triacetin, invertase, hydrogenated naphthas, naphthenate driers, reconstructed oils, basic dyes, miscellaneous chem

likely that approximately 2 million pounds of glycerine will be consumed in these fields.

### Textile Processing

The consumption of glycerine in textile processing was 2.3 million pounds in 1940 and 2.8 million pounds in 1941. The consumption is likely to level off at about 2 million pounds in the post war years.

#### Printers' Rollers and Supplies

The consumption of glycerine in printers' rollers has been comparatively constant at about 2.5 million pounds per year, but the use of glycerine in printing supplies including hectograph composition has increased with the result that the total has increased from 4.3 million pounds in 1940, 5 million pounds in

1941 to 5.2 million pounds in 1942. Some of the increase has been due to war requirements and since some of the glycerine substitutes have found use in these fields, it is probable that the consumption will level off in the neighborhood of 5 million pounds.

#### Adhesives

The use of glycerine in adhesive manufacture has also been relatively static. In 1940, 2.5 million pounds were used, in 1941, 2.9 million pounds, and in 1942, 2.3 million pounds. While the production of adhesives has probably increased, the use of glycerine substitutes has apparently absorbed most of this increase, with the result that the use of glycerine has not increased proportionately to the production of adhesives. This condition is likely to continue and therefore a post war use of approximately 2.5 million pounds of glycerine is indicated.

### Leather Processing

The use of glycerine in the processing of leather has been small, ranging between 0.4 to 0.5 million pounds during the years 1940-1942. It is possible that this use may be increased some as a result of new developments, but at present such possibilities are so intangible that it is not safe to estimate any higher consumption than approximately 0.4 million pounds.

### Paper Products

Paper products other than glassine and greaseproof paper required 1.1 million pounds of glycerine in 1940, 1.5 million pounds in 1941 and 1.5 million pounds in 1942. There have been many new developments in this field and it is possible that this consumption will be increased. However, at this time it is probably not safe to estimate more than about 1.5 million pounds for post war consumption.

### Beverages, Flavors, Candy and Gum

The use of glycerine in beverages, flavors, candy and gum was 2 million pounds in 1940 and 2.4 million pounds in 1941. There has been a substantial increase in the production of these products during the war and while many of the new products probably do not contain glycerine because their formulas were developed at a time when glycerine was not available, nevertheless there is likely to be some increase in the use of glycerine in post war years in these fields. However, a conservative estimate of 2 million pounds is made at this time.

### Margarine, Shortening and Other Edible Products

The consumption of glycerine in the manufacture of margarine, shortening and other edible products was 3.3 million pounds in 1940 and 4.1 million pounds in 1941. The consumption of glycerine in this field has probably increased with the removal of the restrictions on the use

of glycerine and with the increased production of margarine and shortening. How much of this increase can be retained is open to question particularly in the manufacture of margarine since the consumption of margarine is inversely proportional to the consumption of butter. However, it is likely that the consumption of margarine will continue at a higher level than pre-war years, since many consumers have found that it is satisfactory to their needs.

Another development in the edible field is the use of glycerine in the immersion freezing of food. This process is now practiced on a very small scale since the limitation on equipment during the war retarded its development. However, it is likely to increase substantially when new equipment becomes available. Consequently, while the present estimate for post war use of glycerine in the above classes of edible products is set at 4 million pounds per year, it is quite likely that the consumption may be increased substantially above this figure.

#### Tobacco Products

The use of glycerine in the manufacture of tobacco products was 24.8 million pounds in 1940 and 25.8 million pounds in 1941. There have been some inroads made into this market by glycerine substitutes, but it is probably safe to estimate that approximately 25 million pounds per year will be used in this industry.

### Dentifrices and Toilet Articles

The use of glycerine in dentifrices and toilet articles was 9.2 million pounds in 1940 and 11.3 million pounds in 1941. While there has been some expansion in the production of these products, there has also been some use of glycerine substitutes and consequently it is probably not safe to estimate more than 10 million pounds of glycerine per year in these fields.

### Miscellaneous Uses

There are hundreds of miscellaneous uses for glycerine which accounted for 18 million pounds in 1940, 22 million pounds in 1941 and 16 million pounds in 1942. These

uses range all the way from the manufacture of hydraulic fluids to dolls. Since some of the uses have been direct war requirements, it is probable that some of the gain in the three years will be lost. Consequently an estimate of about 16 million pounds for these uses is made,

A LL OF the uses discussed above will require approximately 184 million pounds of glycerine per year. In addition to these requirements the annual pre-war exports of glycerine were in the neighborhood of 2 to 3 million pounds. Consequently it is not likely that a steady requirement of more than 185 million pounds can be counted on in the post war years as compared with an estimated 196 million pounds disappearance for 1944.

In the pre-war years the world supply of glycerine always exceeded the demand in the producing countries in spite of the fact that probably not much more than 60 per cent of the available glycerine was recovered. The excess glycerine amounting to 25 to 30 million pounds found its way into the world trade. Perhaps one half of this excess was absorbed by South Africa and other countries which had demands greater than their domestic production. Most of the balance found its way to the United States with the result that glycerine stocks showed a steady trend upward until the outbreak of the war in 1939. From that time until 1943 they declined as a result of decreased domestic production and greatly increased exports.

In the first half of 1943 the downward trend in stocks was halted by restricting consumption and the discontinuance of exports to England and Russia. In the second half of 1943 and 1944 the production of soap and consequently glycerine was greatly increased and at the same time a small amount of glycerine was imported from South America so that the stocks increased to a high point of 96 million pounds on May 31, 1944. Due largely to increased domestic consumption but also due to slightly increased exports, stocks

(Continued on Page 223)

## Fat Salvage Statistics

THE campaign to salvage used household fats to alleviate shortages caused by stoppage of imports from Pacific areas gained great momentum during 1944, with collections from that source totaling 170,614,000 pounds. This amount, added to the approximately 52,000,000 pounds salvaged by the Army and Navy brought the overall total for the year to 222,537,000 pounds, a gain of 61,290,460 pounds over 1943, when collections came to 161,-256,540 pounds.

While the 1944 collections fell short of the 230,000,000 pound goal set by the American Fat Salvage Committee, working in conjunction with the War Food Administration, the Office of War Information and other Government Agencies, the year's results demonstrate nonetheless an increasing awareness on the part of American housewives of the important part played by fats and oils in winning the war. This is particularly gratifying when we take into consideration the fact that during 1944 the whole country was beset with record-breaking periods of hot weather during which housewives did as little cooking as possible, and that considerable confusion was caused by periodic changes in the point-rationing system.

The giving of extra red points (good for meat, cheese, butter, etc.) naturally spurred collections, since it provided housewives with a practical reason for lending their efforts to the Fat Salvage Campaign.

During the first four months of 1944 collections rose steadily, from 14,870,000 pounds in January to 18,272,000 pounds in April. The April collections, as it turned out, were the highest for any one month of the year, and March, with 17,666,000 pounds, was second highest.

In May, with the removal of many meats from point rationing, there was a slight drop to 16,958,000

pounds, indicating that the extrapoints-for-fats idea made salvaging attractive to many women who could not be appealed to on grounds of patriotism alone. And with the further disadvantage caused by the hot months and vacation periods, collections continued to fall below quota, though June's 15,663,000 pound total was nearly 50 per cent greater than that of the same month in 1943. July collections of 14,666,700 pounds exceeded those of July, 1943 by about the same percentage. Collections in all months of 1944 were substantially greater than in the preceding year, and though August 1944 collections dropped to 11,379,000 pounds, this was approximately three times the amount of used household fat turned in by housewives in August 1942, the first month of the campaign!

With resumption of paid newspaper advertising after a three-month interval and the return of cooler weather, collections began to pick up, September total was 11,-490,000 pounds and October's was 12,069,000 pounds. In November and December there were again slight slumps, collections for those months having been, respectively, 11,457,000 pounds and 11,734,000 pounds.

The chief problem of the American Fat Salvage Committee

and other interested agencies and individuals has been, and continues to be, one of educating the American citizenry to the fact that an adequate supply of fats and oils is essential to successful prosecution of the war. Housewives must be brought to realize that they are the only source from which we can obtain the fats and oils necessary to offset the losses caused by suspension of imports.

To this end, the Committee, with the cooperation of the nation's newspapers, magazines and radio stations, is waging a vigorous campaign. Through news and feature stories, magazine articles, cartoons, photographs, radio and virtually every other means of reaching the public, the appeal for 100 per cent cooperation in the fat salvage drive is constantly being presented.

In this connection, considerable praise is due meat dealers and renderers, who have given untiringly of their time and facilities to boost fat salvage collections. To the meat dealers, participation in the fat salvage campaign means more work and extra bookkeeping. The renderers, by instituting pickup service in isolated sections, have been greatly responsible for increased collections in the sparsely populated states.

That the campaign is bearing fruit may best be judged by the results.

(Turn to Page 224)

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	1043	1012	1044	10.45
	1942	1943	1944	1945
	lbs.	lbs.	lbs.	lbs.
January		6,017,557	14,870,000	15,050,000
February		6,977,664	15,253,000	14,073,000
March		7,335,997	17,666,000	
April		7,327,133	18,272,000	
May		7.982,500	16,958,000	
June		8,646,605	14,663,000	
July		7,819,082	14,803,000	
August	3,016,338	7,341,875	11,379,000	
September	3,812,728	7,288,544	11,490,000	
October	4,821,160	7,379,483	12,069,000	
November	4.718.155	6,815,750	11,457,000	
December	5,098,846	8.924.350	11.734.000	

### HOUCHIN WILL HELP YOU KEEP YOUR SOAP MACHINES RUNNING

New Houchin soap machines will be available as soon as restrictions on deliveries and materials are relaxed.

Meanwhile consult us about repairs or replacements, to keep your present soap machine in top working condition.





## New Soap Making Processes\*

TN many European countries, although the saponification of glycerides was still the common soap making process during the prewar period, a definite trend existed toward the saponification of fatty acids. The reasons were obvious. The conversion time is extremely short, the steam consumption small, soda ash is a cheap saponifying agent, and glycerine recovery is relatively complete. Some leading European companies used the fatty acids process before the war for manufacture of soap powders, yellow laundry, and potash soaps. Only a very limited number of toilet soap manufacturers, however, favored use of fatty acids. Saponification of fatty acids, incidentally, has received quite a strong impetus in the United States during the war years, under the influence of government regulations designed to accomplish maximum glycerine recovery.

The hydrolysis of fats and oils has been subject to many improvements within the last few years. High pressure, continuous fat splitting processes have been patented both here and abroad. Improved methods for saponification of fatty acids have also been patented by leading soap companies in the United States (1).

This would indicate that this process, especially in combination with a spraying system, is going to be continued after the war. However, important work which has been done in the past twenty years on saponification of glycerides will certainly cause some future repercussions. A survey of the technical literature is rather confusing. Some old ideas reappear stubbornly and slight variations of the same procedure are the subject of many patents.

\* Based on an article by Dr. Leopold Safrin, J. Eavenson & Sons, Division of Wilson and Company, in the September, 1944 issue of Soap and Sanitary Chemicals. The main efforts are concentrated upon:

Rapid and complete saponifica-

Recovery of concentrated glycerol; Increase of economy, by labor and fuel savings;

Low, controlled percentage of moisture in soap;

High standard product;

Continuous process;

Utilization of non-caustic salts; Utilization of inferior raw ma-

Suffice to say that no process claims all these improvements. The aims may be achieved by three different ways of saponification:

- Acceleration of the basic reaction by means of heat, pressure, and emulsification;
- Saponification of glycerides with non-alkalis and consecutive conversion to soap by sodium salts, other than caustics;
- Reesterification of glycerides, recovery of glycerine, and consecutive saponification of esters.

Conventional saponification, utilizing caustic lyes of variable strength, has been the subject of industrial research since the days of Merklen (2). Merklen found that the completeness of saponification of various fats and oils depends on concentration of caustic, and the graining operation is a variable, caused by structure of glycerides. Of paramount importance for industrial purposes are the conditions under which the saponification reaction proceeds to completion. Lascaray's (3) observations on aqueous saponification indicate that normal soap boiling takes place in three stages,-the first slow stage (emulsification), the very fast second stage (rapid saponification), and the third retarded end stage (end saponification). The efforts of industrial soap-making tend

to shorten the two slow stages and to achieve rapid saponification. At higher temperatures and pressures saponification time is reduced to minutes or seconds. This is getting very close to fatty acids neutralization, or to saponification in alcoholic medium. Mattikow calculated from the well known formula of decrease of reaction time by raising of temperature the following saponification chart.

#### M. Mattikow in "Oil & Soap," 1940, No. 8

Assumption: (1) Aqueous alkali (NaOH) vegetable oil stirred, at 100° C. (212° F.) reacts completely in 4 hours, (2) Temperature coefficient is about 1.5 for every 10° C. (18° F.).

Tempe	rature	Hours	Seconds
212°	F	4	
230°	F	2.66	
248°	F		
266°	F		
284°	F	0.786	
302°	F	0.524	1886
320°	F	0.350	
338°	F	0.233	
356°	F	0.155	538.0
374°	F		
392°	F	0.07	
410°	F	0.0466	167.7
428°	F		
446°	F	0.0206	74.2
464°	F	0.0137	
482°	F	0.0091	
500°	F		21.9
518°	F	0.0041	
536°	F	0.00273	
554°	F		
572°	F	0.0012	

In addition to temperature, the presence of electrolytes, like salts and caustic, plays an important part in the saponification process. These ordinarily exhibit a delaying action on the initial phase, but may speed up the endphase under special conditions (4).

Conventional saponification normally proceeds in aqueous mediums. However, a few methods of anhydrous saponification have also been suggested.

#### **Anhydrous Saponification**

Kokatnur (5) saponifies glycerides with sodium hydroxide using a non-polar solvent with medium boiling point, preferably petroleum. Saponification proceeds in the oil phase similar to aqueous saponification. By flashing off glycerol and petroleum in a spraying chamber, the anhydrous soap is recovered as powder and the mixture of glycerine and petroleum condensed and separated. This anhydrous saponification has been performed on a production basis by Welter (6), who saponified fatty acids with an excess of sodium carbonate in specially built spraying chambers.

Some suggestions (7) for saponifying fats by the conventional method, drying the soap, and extraction of glycerol by solvents (not soluble in anhydrous soap), have never found practical application.

### Aqueous Saponification at Normal Pressures

This type of saponification is preferred by the majority of soapmakers. A large number of specific methods have been applied to the various stages of saponification. The search for catalysts or emulsifying agents to shorten the initial saponification time has been discouraged by Smith's (8) theory of interfacial saponification. Low chain alcohols, glycols and glycol derivatives, may be used successfully in soap specialties (transparent, dry cleaner, textile soap). The use in conventional soap boiling process is prohibitive from the cost angle. The best and cheapest dispersing agent is still the soap itself. Although this fact is well known to every soapmaker, many quality soaps are started without any additional "help" from soap scraps or nigre. The saponifying (killing) requires a highly empirical skill. The European school prefer to complete the saponification in one operation. In order to speed the endsaponification the salt content is carefully controlled, the mois ure of the soap being adjusted before the graining operation.

A few authorities have suggested that the boiling process be timed to give a minimum of unsaponified glycerides in one short attempt. The process discovered by Mege-Mouries (9) as "estait globulaire" (globular stage) applied by Weineck, has been reinvestigated by Bergell (10).

Bergell adjusts the electrolyte and alkali content before finishing, and adds water to about 43 to 45%, which turns the soap into a thick, globular phase. The last traces of unsaponified glycerides are converted to soap easily, within a short time. The adjustment of electrolytes depends on the percentage of oils rich in low chain fatty acids (coconut, and palm kernel). If the charge contains 10 to 15% coconut oil and the balance tallow, the total of electrolytes should not exceed 1%. If the charge contains 40% coconut oil, the total of electrolytes should not exceed 11/2%. For the free alkali, 1/2% should be calculated in both cases.

In spite of quick and complete saponification, all conventional methods have one ailment in common, the necessity of washing the glycerine from the soap. Special "short cuts" to reduce the settling time to a minimum are employed by some soap makers. These, however, are zealously guarded trade secrets. An attempt to overcome these difficulties is Schaal's (11) "Rapid Saponification." Based on findings of Davidson (12), that most fats and oils saponify completely within two hours in absence of salt (if treated with lyes of certain strength at specific temperatures) this process resembles the semi-boiled process. It requires refined fats and oils, a concentrated lye, and a sturdy crutcher to make soaps with a moisture content of 20%, which, according to Schaal, could be milled to toilet soap without previous drying. The process, although an interesting improvement over the conventional processes as far as the time element is concerned, has not been generally accepted on account of slightly grayish appearance of soap and insufficient glycerine recovery. Schaal improved his process later, using one or two changes for partial glycerine extraction, and blended fifty/fifty with normal toilet soap chips, which gave a nice looking product.

Spontaneous saponification of

glycerides by a spraying system, with and without the addition of fatty acids, has been covered by U. S. patents (13). In this process saponification is completed in the spraying nozzle, or in a specially designed dispersion mill operating at a high peripheral speed (5000 ft./min.), which is able to disintegrate any occlusions of unsaponified fat and oil. In neither case is the glycerine recovered.

### Pressure Saponification

The first attempt to saponify glycerides under pressure goes back to the early time of autoclaving fats to fatty acids. This method (14), however, did not succeed in spite of definite advantages. The main obstacle seemed to exist in the exothermic reaction which resulted in sudden increase of temperature, pressure, foaming and clogging up the safety valves with soap, and not infrequent explosions. This reaction, if performed at 90 pounds pressure, gave excellent results, not only as to the short reaction time, but it improved the settling of soap lyes, probably due to the increased fluidity of soaps at higher temperatures. The process was not applicable to continuous operation, however, and was confined to small batches, due to the limited dimensions of the autoclave. In spite of these handicaps, Loeffl (15) and other investigators tried to introduce a low pressure soap boiling process. They suggested big kettles, and pressures not exceeding 15 pounds. This process has not been accepted, but has become much more interesting with the newer engineering developments. Modern saponification is performed in small diameter high pressure tubes, employing accurate proportionating pumps and efficient high pressure control equipment, reducing the possibility of oxidation to a minimum. It is interesting to observe that the main efforts to achieve this goal have been made in the United States.

### Sharples Process

A number of patents (16) have been assigned to Sharples Corp.

for a continuous process, taking advantage of moderate pressure and centrifuging.

The saponification proceeds under constant flow, in a small autoclave, provided with special mixing equipment, under relatively low pressure and in presence of brine. Due to the retarding action of salt this would be rather difficult to accomplish in a conventional process. Under pressure, a 95% conversion is established in about a half-hour's time, and the soap curds and the spent lye have a consistency and viscosity suitable for smooth centrifuging. After passing the centrifuge, the soap is pumped through a second unit, in which complete saponification takes place. Here a brine wash is added and centrifuged. The third procedure requires a brine only and the resulting soap contains .15% glycerine or less. This is an unusually low percentage, which hardly can be accomplished with any other process. Further important merits of the "Sharples" process consist in a concentrated glycerine lye facilitated by counter-current flow of weaker spent lyes, and finishing the soap on a "nigre" layer, which in turn absorbs a considerable amount of impurities.

The "Sharples" process saves steam and labor and cuts the boiling time from a week to a few hours. A further advantage is the flexibility of this process as to glycerine recovery regulated by number of washes. According to the inventors, the process has proved successful in pilot plant operation, but it will be offered for commercial operation only after all detail work has been completed.

### High Pressure Saponification

The spontaneous reaction, which takes place between glycerides and caustic at high temperatures and pressures, was naturally an interesting object for an industrial adoption. Johnson (17) in England, Henkel in Germany (18), and Clayton (19) in the United States, patented this process, which is basically very simple, but offers great difficulties in practical application. Older suggestions (Mouveau (20), Spinelli

(21), Lombard (22), Marazza (23) of French and English soapmakers, who processed the fats in vertical autoclaves, were found wanting in practical application. Later, the modern trend combines the pressure saponification with glycerine recovery, and has, therefore, a very good chance for practical application. A series of patents, assigned to Refining Unincorporated, and issued mainly in Clayton's and Thurman's names, deal with all possible applications of high temperature saponification and hydrolysis. The continuous soap process has been described by Mattikow in detail, but since his first description a number of changes and improvements have been patented.

It is far beyond the realm of this article to go into the details of Clayton's process and, therefore, only the main characteristics of this impor ant contribution to pressure saponification will be discussed. Fats and lyes (30 to 50% concentration) are mixed by proportioning pumps at temperatures below the boiling point, usually around 180° F. Both materials are preheated in the neighborhood of 300° F., but may range from 250° to 350° F. (Patent 2,343,-829). They are mixed first by a premixer, and additionally by a rapid rotating agitator, before entering the reaction zone. Saponification is usually performed in two stages. A high pressure pump forces the presaponified mixture through a reaction coil, described by Mattikow as a half-inch nickel pipe, about 275 feet long, and wound in pancake form. In the shell containing the reaction coil the temperature is kept at about 420° F. and 250 pounds pressure, the coil being heated by Dowtherm. The end saponification takes place in a second, identical coil-unit, at about 420° F. and 250 pounds pressure, and the resultant product is piped to a vacuum chamber at 550° F. and 50 pounds pressure. This chamber is jacketed, maintaining a temperature preferably above the melting point of soap and vacuum of 29". Glycerine and water are flashed and condensated in a

separate system of tubular condensers. The molten soap flows to the bottom of the chamber, is cooled without contact with the atmosphere, and a "friable" soap is produced. According to the inventors, the physical properties of this anhydrous soap are different from the usual type. The soap is very easily and uniformly hydrated to the desired degree, and, if sprayed, is more readily soluble than a conventional soap.

One of the most difficult problems involved in this process is maintaining the system, high pressurevacuum and, further, the removal and cooling of soap in a special type conveyor. The soap in this conveyor must be cooled down to 200 to 220° F. in order to prevent any substantial oxidation.

The further steps depend on the nature of the soap product desired. This is discussed in detail in various patents. It seems quite possible to attain all kinds of soap powders by re-hydration of soap and the addition of fillers; soap flakes and milled soaps by bringing the moisture to the desired percentage. The concentration of glycerol to 95%, and even the recovery of fatty alcohols, is within the scope of this patent. However, it has to be borne in mind that this is a highly synchronized, continuous process, and each reaction step has to be controlled carefully. Otherwise serious set-backs, such as discoloration, "burning," or other disturbances may occur. Clayton's process has also been suggested for soap stock purification and anhydrous saponification.

Of all pressure saponification processes, Clayton's is the only one which passed the pilot plant stage. This cannot be said of Henkel's process, and as far as is known here of the very schematic description by Adcock (24), of the English process. Clayton's saponification is especially suitable for powdered soap and flakes, probably less for bar soap manufacture.

The unit which is recommended for commercial operation has a capacity of 12,000 to 15,000 pounds of finished anhydrous soap in twenty-four hours.

### Low Pressure Saponification

The method of saponification under diminished pressure can be found in the older literature under the description of Vacuum Saponification. Actually, this method has been devised for the recovery of glycerine only, because saponification is retarded under vacuum. Lorentz (25) suggested accelerating the reaction time by the use of superheated steam, and worked out a continuous process which operates under diminished atmospheric pressure. The fats and oils previously heated to about 250 to 300° F., and the alkali of about the same temperature, enter the operating chamber, containing a high-speed mixing device. According to Lorentz, practically instantaneous saponification occurs, and the mixture overflowing the sides of the mixing chamber, flows downward. At the same time, superheated steam entering the bottom of the operating chamber and passing upward in counter-current evaporates the volatile materials, including glycerine which are drawn off at the top of the reaction chamber and are condensed and collected in separate receptacles. In case the glycerides are not completely saponified, Lorentz provides a second chamber, heating the mixture to higher temperatures, or recycling the unsaponified material.

Lorentz's process has the advantage of relatively low temperatures and diminished pressures, but is at a disadvantage in the incompleteness of saponification. It is, however, superior to older vacuum saponification in its use of modern equipment and superheated steam for volatilizing the glycerine.

### Conversion Agents Other Than Caustic

Some time ago the saponification of fats was investigated from the angle of utilization of cheap alkalis, sodium sulfide (26), sodium silicate, sodium carbonate, bi-carbonate (27), and sodium chloride, being suggested. The first four materials react with fatty acids, but produce very unsatisfactory results with glycerides, even under pressure. Their utilization has never been seriously considered for conversion of glycerides to soap.

Common salt, being one of the cheapest materials, was the subject of many experiments, especially for an electrolytic process. The basic idea advocated lately by Imhausen (28), Sandreczki (29), and Andrault (30), applies electrolysis to decompose salt, similar to sodium hydroxide manufacture, but uses the formed caustic immediately for saponification, and the excess salt for the graining out operation. The formed soap curds are removed continuously from the reaction and saponification chamber.

In practice, many side-reactions took place, and thus far this method has not achieved any practical value. The methods using indirect conversion have been much more successful.

#### Krebitz Process

Krebitz (31) found the practical solution for utilization of sodium carbonate, by converting the glycerides to calcium soap by means of lime, and reconversion of the lime soap with soda ash solution in the presence of salt to soap. This method has been used extensively for many years in Central Europe, and may still be applied, where local conditions are favorable. The conversion of fats and oils to lime soap requires very little heat (90 to 95° C.), and once the reacting materials are emulsified, the formation of lime soap proceeds quickly and completely. The lumps of lime soap, ground to special fineness, are leached in counter-current flow in a twelve foot tower. The resulting glycerine is of extremely good color and quality. The lime soap is easily converted to soap by sodium carbonate in the presence of salt, and the soap, even from inferior fats, is of extremely good color and odor, suitable for toilet soap production.

Krebitz's process has the disadvantage of forming bulky calcium carbonate, which tends to absorb some of the soap, and can be calcinated only in special lime kilns.

### Ammonium Soap Conversion

Since the days of Solvay, and his successful soda process, the reaction of ammonium soaps with common salt has been tried over and over again. The complete saponification of glycerides by ammonia is difficult, but has been claimed by Garelli (32). The conversion, commercially established in Italy and Austria, works in stages similar to Solvay's soda process. The ammonium soap being slightly soluble in water reacts with sodium chloride, forming soap and ammonium chloride. Due ammonia losses of 8% on recycl ; and 2% due to uncomplete c version, this process has been abang med. There is, however, still a chance for a comeback, should the low price of ammonia allow for the losses, and the ammonia saponification of glycerides prove eventually successful.

### Reesterfication of Glycerides and Saponification of Esters

This process, based on reesterification of glycerides by means of alcohols (mainly methyl and ethyl alcohol), has been introduced to soap manufacturers by Bradshaw and Meuly of the Du Pont Company (33). It has been described by the inventors (34) in detail.

It has great potentialities for the fat refiner, as well as for the soap manufacturer, on account of excellent bleaching, refining, and distilling facilities. The interchange proceeds smoothly in the presence of about .5% free caustic alkali, practically water-free fat and alcohol. The glycerine layer is formed very easily, if fats low in free fatty acids have been used. In case a higher percentage of fatty acids is present, in addition to the old methods (distillation, refining), a methylation with methylation agents has been devised by the inventors.

This method is of special interest for the utilization of low grade fats and oils. The methyl esters are easy to fractionate and could be sold to the soap maker in individual frac-

. (Turn to Page 223)

## D D T Review\*

EFORE use of a material for pest control, consideration should be given to the following: (1) hazards to the various species of plants and animals, and the difference of susceptibilities within the species; (2) the variability of the product from different manufacturers, and of different batches from a given factory; (3) the degree of absorption by the host and translocation of absorbed quantities to other parts; (4) upset of the biological balance; (5) production of chlorosis in plants; (6) undesirable blemishing of fruits such as russeting of pears; (7) poisoning of the soil which may interfere with growth of plants; and (8) the effects of degradation or decomposition products. In addition, one has to reckon with any hazardousness of the material on foodstuffs to be consumed by man and other animals. We now know that DDT is not a cure-all and we have yet to make certain it isn't a kill-all, at least with respect to its phytocidal effects.

d

Let me read you some clippings from advertisements.

An absolute departure from other presently used spray materials such as arsenical, nicotine, and fluorine preparations.

rations.

Avoid risks!
Change from poisons.
High speed killer.
Harmless to human beings.
Solves the residue problem.
Revolutionary in performance!
A substitute for lead arsenate.
Residual killing effect.
All around spray protection.
Unequalled, for control, speed and economy.

You have probably heard all of these claims made for DDT but these quotations are not about DDT, they were made ten years ago with regard to phenothiazine, xanthone and rotenone when these products were

first being used, before their limitations were fully understood.

Eventually rotenone made good, not as an alternate material for anything, but as a specific against certain vegetable insects. With regard to DDT for agricultural pest control we have the same situation over again with perhaps too much technical and governmental encouragement.

In the absence of adequate information, many writers in daily newspapers and popular magazines from time to time have glibly said with regard to DDT that it would kill insects but is entirely harmless to human beings and domestic animals and pets. No such product is known to exist. Such a pharmacological distinction between insects and other animals is unlikely ever to occur. Any substances that will injure insect protoplasm will undoubtedly injure protoplasm of warm-blooded animals, whether eaten or absorbed by contact. Some of the so-called "popular science" article writers appear to be describing DT's rather than DDT.

Much has been written about the ability of DDT to kill insects but as already pointed out that is not the whole story. Illustrative of the extravagant claims are that if you dust your cat with DDT you can say good-bye to fleas. The reports say it will kill crop-killing and disease-carrying insects, and eventually may eradicate them forever; let one insect invader alight on a leaf of your garden that has been treated and the pest topples over dead.

D<sup>DT</sup> appears to be effective against a long list of house-hold pests of human beings and other animals such as head lice and crab lice on human beings, bedbugs, ticks on dogs and vegetation, chiggers on vegetation, spinose ear ticks, house-

flies, flies on range cattle, goat lice, fleas on dogs, and some species of roaches. Through ingestion there is the possibility of poisoning animals that lick themselves, such as cats which have a habit of licking their fur. DDT is said not to be effective in control of the American cockroach (J. Ec. Ent. Feb., 1944, Beltsville work).

In spite of the large amount of work done, the most effective results have been for control of mosquitoes, and of body lice where a 5% dust was used. There are 13 manufacturers of DDT who are manufacturing at the rate of two million pounds a month and at present the entire output is reserved for use of the armed forces with the exception of limited quantities allocated for experimental work. The Army uses DDT for control of disease-carrying insects such as body lice and mosquitoes. One part in 100 million of water will kill mosquito larvae. For purposes other than use against household insects, there is danger of DDT being over-rated.

DDT is of no practical value for control of boll weevil, cotton leaf-worm, cotton aphid, pea weevil, and Mexican bean beetle. It is not effective in bran against snails. On the whole DDT has shown no encouragement in control of citrus bud mite and citrus red mite.

DDT is reported effective against plant pests as follows: beam leaf roller, blister beetles, cabbage looper, tomato pin-worm larvae in the leaf miner stage, Colorado potato beetle, corn leaf hopper, cowpea weevil, pepper weevil, garden flea hopper, Harlequin cabbage bug, imported cabbage worm, melon worm, pickleworm, cotton bollworm, lygus bugs, onion thrips, thrips on cotton, European corn borer, tomato fruitworm, potato leaf hopper, diamond back moth, and codling moth. In several

<sup>\*</sup> Based on a talk by Dr. Alvin J. Cox, Chief, Bureau of Chemistry, California Department of Agriculture, before the Fall Conference of State Association of County Agricultural Commissioners, Sacramento, December 7,

reported cases use of DDT sprays reduced codling moth injuries on apples to less than 1%. On codling moth on walnuts it appears to be effective based on worminess of dropped nuts.

DDT is somewhat effective in grasshopper baits and as a dust. Crickets are said to be more susceptible to DDT than are grasshoppers. DDT is toxic to some insects, such as termites and ants in cage tests but preliminary data are too meager to establish the degree of control that it may provide. DDT is of some limited value for control of turnip aphid, thrips on gladiolus, and fall cankerworm. In general, DDT is not of great value for control of aphids.

DDT increases toxicity of oil sprays to adult California citrus red scale and has residual effectiveness against crawlers which do not get past the whitecap stage. DDT is not as effective against citrus thrips as tartar emetic was at the outset. It was better than nicotine in some cases and not as good in others. Dr. C. O. Persing, University of California Citrus Experiment Station, Riverside, obtained a mortality of 100% on eggs of greenhouse thrips indicating an ovicidal effect of DDT for the first time.

G. E. Carmen, University of California Citrus Experiment Station, Riverside, found DDT dusts and sprays were effective against the oriental fruit moth. As a spray in field applications, after 24 hours it was 95% effective in preventing larvae from entering shoots, and after 10 days it was still 65% effective. Dusts applied with spray-duster equipment are encouraging, presumably because the deposits are resistant to weathering and mechanical losses. DDT is effective for control of storage pests, namely, red flour beetle and rice weevil.

DDT is said to act as a stomach poison for honeybees, and kills bees confined in a cage sprayed with a 1% preparation. Insofar as I know the mode of action of DDT in killing insects has not been deciphered. Some of this information may be milleading as the results were obtained in cage tests, and the available data are too meager to establish what it will do in the field of agriculture. It is too great a leap for chemical processes worked out in the laboratory to be used immediately for commercial production and the processes should first be explored in a pilot plant. Economic entomologis.s are more and more using a similar system in their experimental work to bridge the hiatus between research and commercial application where the transition has frequently been too rapid.

ONE frequently gets entirely misleading information from relying wholly on toxicity tests such as I have mentioned for DDT against insects. It makes no difference with what one misses a bug. If one can't get a material to insects cheaply it isn't a control. For example, creosote probably will kill everything that DDT will, but after an creosote has only limited and specific agricultural use, because it canno: meet all other requirements of an insecticide for general usage. Termites have been killed by DDT in cage tests, but commercial application is a different thing. If wireworms are killed by DDT, then experimentation for control would involve the definite knowledge that the amount to be used would not injure the soil.

In California our Bureau of Chemistry comprises the bars through which usage plans are screened before commercial application is permitted. When a product will kill pests it has complied merely with one requirement of an economic poison to serve agriculture. All of the requisites for registration of an economic poison are of concern to our Bureau, but of double concern is the pharmacology of a product because this not only is a factor determining its eligibility to registration, but also its spray residue hazard. Our Bureau is responsible for administration of the spray residue law against all economic poisons, and until full information is available DDT should not be used on

commodities to be eaten. Until all fac.ors are known and adequate data are developed, promiscuous use of DDT in California is not advisable. The interest of agriculture and business will be served better by a conservative utilization of DDT for economic poisons than by a headlong rush to buy and sell it as an entomological panacea.

There is much misconception about DDT. It is a tasteless, odorless, white powder not suitable as an insecticide in its original state. It is insoluble in water. It is used mixed with extenders in the form of a dust, as aqueous suspensions, and dissolved in oil. Its incorporation into dusts offers more difficulties than are encountered with ordinary preparations. A definite sharp line should be drawn between (1) DDT in dusts or as colloidal suspensions in water, and (2) DDT in oil. DDT in oil and in other organic solvents appears to be dangerously absorbable. On the other hand oil may be made to accomplish the major part of the work and be only assisted by a small amount of DDT. Solubility of a material in various solvents is fundamental information. and some approximate solubilities of DDT expressed as percent of solution weight are as follows:

	DDT as %
	of solution
	weight
Ethyl alcohol, 95%	21/2
Ethyl alcohol, absolute	
Acetone (dimethyl ketone	
Petroleum ether	
Diethyl ether	
Chloroform	
Benzene	
Carbon tetrachloride	25
Cottonseed oil (Sp. gr. 0.91	
Ethyl acetate	
Carbon disulphide	
Cyclohexanol	
Cyclohexanone	
Normal butyl alcohol	
Tertiary butyl alcohol	
Iso-amyl alcohol	
Methyl alcohol	
Iso-propyl alcohol (90-91%	
Tetrahydronaphthalene	34
Tetrachlorethane	
Toluene	
Kerosene	
Spray oil	
Diesel fuel oil 0.5 lb. per	
Presentation of the per	

Tetrahydronaphthalene and some other naphthalene products, are said by their own presence to produce tree injury, which indicates the possible injuriousness of some solvents themselves. Check procedures should always be used to determine whether any observed damage is due to a material of the solvent.

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T THE meeting of the California USDA War Board Economic Poisons Advisory Committee of which I am chairman, it was the unanimous opinion that requests for DDT for pest control purposes should be allotted through economic poisons registrants who have adequate facilities to carry on the difficult grinding and other procedures to prepare dusts and sprays, and who agree to use adequate safeguards. The Committee readily endorses the quantities needed to continue reputable experimental and pilot development work, and desires to encourage conservatism until experimental work has been completed. Our Bureau has not objected to such usage on trees from which the fruits would be sent to a cannery where any spray residue hazard is eliminated by peeling and coring.

In view of the exceedingly limited supply of pryethrum, the scarcity of rotenone, and the inadequacy of available nicotine, it was agreed that effort should be extended to secure for California agriculture all the DDT that could be used without hazard in view of present knowledge. The Committee was of the opinion:

- (1) That at present or until the Food and Drug Administration sets a tolerance or otherwise satisfactorily passes judgment on acceptability, DDT should not be used on any product that is to be directly consumed.
- (2) That in the absence of further information and in order to protect California soil, DDT should not be directly applied to the soil nor used on any crop where there is more than a minimum run-off onto the ground. DDT in soil in substantial quantities may interfere with growth of plants. Small dosages as might be used for control of grape leaf hopper on grapes would seem not hazardous in this respect.
- (3) That DDT should not be used where it is likely to be absorbed in plant tissue until authoritative information is available. In certain cases absorption is measurable, and its use has been reported to produce russeting of pears.

(4) For those instances where it is accepted that there is not too great a hazard, there should be a backlog allotment of DDT for use in California in case other pest control materials are not available for specific purposes, such as control of grape leaf hopper and of sharp-shooter leaf hopper on grapes in one application prior to bloom, citrus thrips, codling moth on walnuts, canker worm on prunes, pea aphis on peas before formation of pods, and worms on vegetables grown for seed. Suggested backlog amounts as indicated to be allocated for use as needed were estimated as follows:

Grape leaf hopper on grapes
before blooming100,000 lbs.
Citrus thrips on citrus 20,000 lbs.
Codling moth on walnuts 10,000 lbs.
Onion thrips on onions 50,000 lbs.
Canker worms on prunes 10,000 lbs.
Worms on vegetable seed crops grown for seed (not
including onions) 15,000 lbs.
Thrips on dry beans 15,000 lbs.
Protection of animals from
pests, including spraying dairy barns to reduce flies. 25,000 lbs.
Experimental purposes 50,000 lbs.

Since the time that these estimates were prepared we have received information that where the regular materials are unavailable DDT may serve satisfactorily for control of pear thrips on certain deciduous trees. Pear thrips infestations are reported to have been extensive in six or eight counties of California for the past two years, and a backlog of at least an additional 110,000 pounds for this purpose would seem reasonable and desirable. Therefore, California agriculture could use approximately 400,000 pounds or more of DDT in 1945.

Rumor has it that certain manufacturers are hoping and expecting to use DDT beyond the uses herein indicated, and without the public knowing the background. Many new insecticides have come onto the market without undue push or restraint and have found a place, but no new product should go into general use without the background being established and without it being fully investigated for each particular pest before it is placed on the market. Mr. Churchill sets off the end of the war for six months from time to time. Please do this with regard to DDT until we know about the varicus factors involved.

IN ORDER to reiterate with emphasis that which was narrated in my annual reports prior to the advent of DDT, I refer to a statement written about two years ago which appears on page 133 of my paper entitled: "Economic Poisons: California Law and Its Administration," which reads: "The rapid increase in the use of synthetic organic chemicals illustrates the need for study to provide data for intelligent handling of products of this nature. \*\*\*\*When a chemical is not acutely poisonous, generally little is known as to the extent of its injuriousness." Knowledge of the pharmacology and toxicity of DDT should keep abreast of its insecticidal effectiveness and contemplated use.

At our request, Dr. Clinton H. Thienes, of the University of Southern California, carried on a diet test with white rats using DDT. Beginning January 10, 1944, the rats were kept on a diet containing one part DDT in 10,000 parts foodstuff. On March 11, just two months later, they began to have convulsions. Two days later half of the rats were restored to normal food with near disappearance of convulsions. However, both the withdrawn rats and those remaining on the DDT diet died within a further three days. This experiment indicates the cumulative properties of DDT.

In May 1944, the United States Bureau of Entomology and Plant Quarantine fenced three-quarters of an acre of grass land containing grasshopper egg masses about 60 miles from San Diego. When the hoppers were emerging, the area was fairly effectively dusted at the rate of 40 pounds per acre with a dust containing DDT 10 per cent. We wanted to determine any hazard of using DDT in pastures. Forty-eight hours after dusting, our Bureau of Chemistry was permitted to put three ewe sheep in the field. After seventy-two hours, they showed extreme neurologic symptoms. They reminded me of dogs suffering from rabies, which is a brain disease. Nervous disorder in the sheep was

characterized by tremors and especially by motion in the hind legs similar to string-halt in horses. Their necks seemed to be affected as they would keep their noses to the ground, but did not graze. The animals eventually recovered, probably due to removal of DDT dust from the vegetation by wind, the tramping of the animals, and to a slight rain.

A month later we dusted the field in like manner with like amount. The animals behaved in the same manner as with the first treatment but again all recovered. One of the ewes was taken to the University of Southern California where we continued the feeding experiment, From July 10 to July 21, a dosage of 2 grams of DDT daily was orally administered by capsule, and continued for eleven days. No symptoms were noticeable and the dose was increased to 4 grams per day and continued for forty days. On August 30, still no symptoms were noticeable and the dose was further increased to 8 grams daily for 14 days and then 16 grams daily and death ensued 17 days later. Dr. Thienes said that after the dosage was increased to sixteen grams a day pronounced nervous symptoms in the form of tremors of the hind quarters and pawing with the fore-legs were soon observable. The symptoms became more pronounced until the animal was unable to rise from the ground and stand on all four legs or manage itself. Upon autopsy the kidneys and liver showed moderate degeneration. I realize that one animal is not a conclusive test, but may indicate what one may anticipate.

The best information to date on experimental poisoning and pharmacologic action of DDT, is in three articles released in the July 28 and August 4, 1944 numbers of Public Health Reports, which are entitled "Experimental Poisoning with DDT," "The Pharmacologic Action of DDT" and "Histopathological Changes Following DDT Administration."

In the first article, experiments were carried on with 5 cats, 41 rabbits and 34 rats, and it did

make them sick. In the second article it is stated:

"The symptoms which this compound produces in experimental animals strong-ly resemble in some respects the action of phenol. Except for the delayed onset, wanca may be several hours, and persistence of action, which may last for one to several days, the hyperexcitability, the generalized fine and coarse tremors, culminating in flaccid or spastic paralysis with occasional tonic and clonic convulsions preceding death by respiratory paralysis, suggested the possibility of phenol or phenol-like substances being formed in the body in the course of systematic poisoning."

The article further stated:

"Because of the insolubility of this substance in water it has been necessary to administer the compound in solution in olive oil or in aqueous suspension with gum acacia. Gastro-intestinal absorption when given in aqueous suspension is irregular and poor, consequently the toxicity of the substance when given in this manner is much lower than when given in olive oil. The LD-50 in rats when given intragastrically in 1 to 5 per cent solution in olive oil is 150 mg. per kg.; in rabbits 300 mg. per kg. Death may often be delayed for several days. It may be of interest to compare the toxicity of this compound with that of phenol, similarly administered, it being more than three times as toxic as phenol in rats and possibly twice as toxic in rabbits."

The third article deals with microscopic studies of 16 rabbits, 38 rats, 24 guinea pigs, 14 mice, 12 chicks, 6 dogs, 3 cows, 3 sheep and 1 horse. Practically all organs and glands were examined. Although there were wide variations in sensitivity to the compounds among the different individuals of given species, the lesions caused were quite consistent throughout the different species. On the higher dose levels with the animals surviving for one to several weeks, there was typically caused a moderate degree of central necrosis of the liver, or with the longer periods of survival a combination of central necrosis and a moderate subacute degeneration of the liver. The thyroid gland and the voluntary muscles showed slight to moderate effect.

IF USED in agriculture, we have reason to believe that removal by adequate alkaline washes of DDT residue from fruits and certain vegetables is commercially feasible with existing machinery provided the federal tolerance, when set, is not in

practical effect a prohibition of the presence of any DDT at all. For example, a tolerance of DDT, 5 parts per million on apples would be a handleable problem, but a tolerance of 0.1 part per million on leafy vegetables would undoubtedly mean that the vegetable grower should not try to use it for pest control except on seed crops.

Dr. Froelicher of the Geigy Company, has given a word of caution with regard to DDT when he said: "This is a new product and as such requires years of research under normal conditions. True, with the terrific energy expended by scientists throughout the country, much has been learned in the past two years. However, let us not forget that much more work is needed and much more work will be done before all ramifications are known. Moreover, let us also remember that the Gesarols and the Neocids are not curealls. They are specific! Give them a chance to be tried in the right way and let us deal in facts, not fiction!"

Dr. Herbert O. Calvery, Chief of the Division of Pharmacology, U. S. Food and Drug Administration, reported in a November 3, 1944 news release that in solid form DDT applied topically to the skin of several species of animals is nonirritating, nonsensitizing and not appreciably absorbed. In solution, either in oil or in organic solvent, it does readily penetrate the skin, is mildly irritating and a mild sensitizing agent.

Dr. Calvery said, 'More experimentation is needed before we will have clear and full understanding of DDT and the various formulations in which it may be used for insecticidal purposes."

While DDT under certain circumstances may be harmful to human beings it is believed that when thoroughly understood it can be used for many specific purposes without hazard, but there still remains the gauntlet of scientific tests to demonstrate satisfactory compliance with, and fulfilment of, all requirements necessary to provide an effective and acceptable economic poison for common usage.

## Government Orders

Orders of the WFA, WPB and OPA covering use by soap makers of fats, oils and rosin, raw material inventories, pricing of soaps, toiletries, etc.

### FAT and OIL USE in SOAP WFO-42b

(as amended Mar. 21, 1945)

USE OF FATS AND OILS IN SOAP

The fulfillment of requirements for the defense of the United States will result in a shortage in the supply of fats and oils for defense, for private account, and for export; and the following order is deemed necessary and appropriate in the public interest and to promote the national defense:

- § 1460.33 Use of fats and oils in soap -(a) Definitions. (1) "Fats and oils means all the raw, crude, refined, and pressed fats and oils, whether vegetable, animal, fish, or other marine animal, their by-products and derivatives, including foots, grease (lard) oil, sulfonated and similarly processed fats and oils, fatty acids, lard and rendered pork fat, and the fat and oil content of any other product, but not including glycerine, cocoa butter, butter, wool grease or fat, essential oils, tall oil, mineral oils, and vitamin-bearing oils (including their by-products and derivatives) ob tained from fish or other marine animal livers or viscera.
- (2) "Manufacturer" means any person who uses fats and oils in the manufacture of soap. The term shall also include a soap converter.
- (3) "Soap converter" means any person who uses soap made by others as a raw material and, by the addition of other materials or ingredients, makes a finished product which is sold for detergent purposes. The term "soap converter" thall not include persons who merely add small amounts of color or perfume to the original soap, or who merely dissolve paste or other soaps in water to make liquid soaps without adding other non-soap detergent materials.
  - (4) "Soap" means the water-soluble

product formed by the saponification or neutralization of fats, oils, or their fatty acids with organic, sodium or potassium bases; or any composition containing such products, including all types of shaving soap and shaving cream.

- (5) "Package and bar soap" means all bar soap, however packed, and all other soap originally packed in unit packages containing less than 25 pounds net.
- (6) "Bulk package soap" means any soap, except bar soap, originally packed in unit packages containing 25 pounds net or more.
- (7) "Abrasive hand soap" means paste and powdered soap products sold regularly for the removal of soil from the human skin, which contain by weight, on a moisture-free basis, not less than 10 per cent nor more than 40 per cent anhydrous soap, and not less than 25 per cent abrasive material of an organic or inorganic nature, to facilitate soil removal.
- (8) "Foots" means the by-product residue or the derivatives thereof obtained in the refining of any fat or oil, except linseed oil, where such refining is accomplished by treatment of such fat or oil with any alkaline material.
- (9) "Washed, recovered linseed oil" means the by-product residue or the derivatives thereof obtained in the refining of linseed oil where such refining is accomplished by treatment of linseed oil with any alkaline material.
- (10) "Base period" means the calendar years 1940 and 1941.
- (11) "Exempt agency" means (i) the Army, Navy, Marine Corps or Coast Guard of the United States, (ii) the War Food Administration (including but not

restricted to any corporate agency thereof), (iii) the War Shipping Administration, (iv) contract schools, marine hospitals, and maritime academies, as defined in War Food Order No. 73, as amended (8 F.R. 13880, 9 F.R. 4319, 10036), and (v) ship suppliers as defined in War Food Order No. 74, as amended (9 F.R. 8002), who holds licenses under that order.

- (12) "Person" means any individual, partnership, association, business trust, corporation, or any organized group of persons whether incorporated or not.
- (13) "Director" means the Director of Distribution, War Food Administration.
- (14) "Inventory," with respect to soap, means the quantity of soap owned by any person, wherever located, excluding a soap converter's stock of finished products.
- (15) "Current rate of consumption," as determined on any particular date, means (i) the amount of soap used for a specific purpose during the 45-day period immediately prior to such date, or (ii) the amount of soap scheduled for use for a specific purpose during the 45-day period immediately following such date.
- (b) Restrictions on manufacture. (1) Except as hereinafter provided, no manufacturers shall, in any calendar quarter, use fats and oils in the manufacture of soap in excess of a quota equal to the permitted percentage of the average amount of fats and oils used in such class of soap during the corresponding calendar quarters of the base period:

Permitted percentage

Class of soap:

Package and bar soap............ 80 Bulk package soap ............. 90

(2) Any manufacturer who has used his quotas for all classes of soap for any calendar quarter may use up to 10,000 pounds of fats and oils, in the aggregate, for soap in such calendar quarter in addition to his quotas. This additional usage shall not constitute a quota under

- any provision of this order. Any unused portion of such permatted additional usage shall not be carried forward to a succeeding calendar quarter.
- (3) Any manufacturer who does not use his entire quota for any calendar quarter may carry the unused portion of such quota forward only to the succeeding calendar quarter and may use the same in the succeeding calendar quarter after his regular quota for such quarter has been used.
- (4) For the purpose of determining the quantity of raw "foots" or "washed, recovered linseed oil" which may be used use shall be calculated on the basis of total fatty acid content.
- (5) All restrictions on the use of fats and oils are imposed with respect to aggregate quantities, and such restrictions are not to be construed as limiting a manufacturer to the use of the same fat or oil used in the base period.
- (6) No manufacturer shall use lard or rendered pork fat in the manufacture of soap unless the lard or rendered pork fat so used was purchased by such manufacturer prior to November 13, 1944.
- (c) Quota exemptions. Nothing in (b) (1) hereof shall restrict the following uses of fats and oils:
- (1) Use by any manufacturer who used fats and oils in soap prior to July 1, 1943, and whose total use in any calendar quarter is not over 15,000 pounds, exclusive of use pursuant to (c) (2) or (c) (3) hereof; or the use by any manufacturer whose use of fats and oils did not begin until on or after July 1, 1943, and whose total use in any calendar quarter is not more than 1,000 pounds, exclusive of use pursuant to (c) (2) or (c) (3) hereof. The permitted usage under this section (c) (1) shall not constitute a quota under any provision of this order:
- (2) Subject to the provisions of (d) hereof, use in soap delivered or contracted for delivery, directly or through intermediate distributors, to:
- (i) An exempt agency, or the Veterans Administration, pursuant to the provisions of a contract;
- (ii) Any person for use in laundering under contract with an exempt agency or with the United States Maritime Commission; or
- (iii) Any person or agency specified by the Director.
- (3) Use in soap for export to the Dominion of Canada under a license granted by the Dominion for such importation, or to any other country pursuant to an export license issued by the Foreign Economic Administration;
- (4) Use in abrasive hand soap, or in soap used for non-detergent purposes or for the processing of textiles;
- (5) Use in soap for sale to soap converters for further processing; or

- (6) Until March 31, 1945, the use of fish oil by any manufacturer: Provided however, That if such manufacturer used fish oil in the manufacture of soap during the base period, the amount so used shall be excluded in determining his quota under (b) (1) hereof.
- (d) Certificates. (1) Any delivery of soap made through an intermediate distributor to an exempt agency or to the Veterans Administration, and any delivery of soap, direct or indirect, to any person specified in (c) (2) (ii) or (c) (2) (iii) hereof, shall not result in an exemption from the quota restrictions under (b) (1) hereof, unless a certificate or certificate copy thereof is obtained by the person claiming such exemption, which certificate shall contain the following: the name of the manufacturer and of the person making delivery of the soap, the amount and kind of soap delivered or to be delivered, and a statement that the person or agency to whom delivery has been or will be made has either received the soap covered by the certificate or has contracted therefor. If delivery has been or will be made to a person specified in (c) (2) (ii) or (c) (2) (iii) hereof, the certificate shall state the purpose for which the soap is to be used. All certificates shall be signed by the person or agency receiving the soap, or by an authorized representative, and shall be turned over to the deliverer who, if he is not the manufacturer of the soap, shall forward the certificate promptly to the manufacturer. Upon receipt of the certificate, the manufacturer named thereon shall endorse upon the certificate the amount of fats and oils used in the manufacture of the soap covered by the certificate.
- (2) All certificates executed under (d) (1) hereof shall be retained by the person claiming exemption. All statements contained in such certificates shall be deemed representations to an agency of the United States. No person shall be entitled to rely upon any such certificate if he knows or has reasonable cause to believe it to be false.
- (e) Establishment of base period usage.

  (1) No manufacturer may use fats and oils under (b) (1) hereof unless and until he has filed, on Form FDO 42-1, a report of his use of fats and oils in each class of soap for each calendar quarter of the base period.
- (2) Fats and oils used by a manufacturer during the base period for any purpose set forth in (c) (2), (c) (4), or (c) (5) hereof, or in the manufacture of soap for export to a foreign country, shall be excluded in determining his quota under (b) (1) hereof.
- (f) Acquisition of facilities. Any person who acquires all the soap making facilities of another person shall become entitled to the quotas of such person, whether or not he continues to operate such facilities in whole or in part, Pro-

- vided, That he shall, within 30 days following such acquisition, inform the Director of the facilities acquired, their location, whether or not operations will be continued in the same or another location, and the amount of quota which he claims to have acquired for each class of soap.
- (g) Toll agreements. Fats and oils owned by one person and processed by another shall be charged against the quota of the owner and not the processor, Provided, however, That the title to any soap so manufactured shall remain in the owner of the fats and oils and such owner shall market such soap and shall invoice and collect therefor through his own organization, and the processor shall not buy directly or indirectly any soap so produced. Otherwise, fats and oils so processed shall be chargeable against the quota of the processor.
- (h) Computation of quotas; diversion. Any manufacturer may divert a quantity of fats and oils, from the average quarterly amount of fats and oils used by him in the base period in the manufacture of a particular class of soap, to the average quarterly amount of fats and oils used by him in the base period in the manufacture of another class of soap: Provided, That the total amount so diverted shall not exceed 250,000 pounds during any calendar quarter under this order; and, Provided further, That his total permitted use for all classes of soap in any calendar quarter shall not, after such diversion, exceed (but may be less than) his total permitted use of fats and oils in the manufacture of all soap as computed prior to such diversion.
- (i) Exemption for washed, recovered linseed oil. In computing the amount of fats and oils used under (b) (1), (b) (2), or (c) (1) hereof, a manufacturer need count only 50 per cent of the actual amount of washed, recovered linseed oil so used.
- (j) Purchases from exempt agencies. The fat and oil content of any soap which is purchased by a manufacturer from any exempt agency, other than contract schools, marine hospitals, maritime academies, or licensed ship suppliers, shall not be chargeable against his quota if the product so purchased is used by him in reworking into any class of soan.
- (k) Exemption for lard and rendered pork fat. Any manufacturer who, during the period from May 15 to June 30 1944, both inclusive, and the period from July 17 to July 31, 1944, both inclusive, purchased and accepted delivery of lard or rendered pork fat, may use such lard or rendered pork fat without charge against quota in the manufacture of soap.
- (1) Records and reports. (1) Every manufacturer, except a soap converter, who uses more than 15,000 pounds of fats and oils in any calendar quarter shall properly fill out and mail to the Bureau

of the Census, Washington 25, D. C., Bureau of the Census Form BM-1 for each calendar month, on or before the 15th day of the month immediately following, and Bureau of the Census Form BM-2 for each calendar quarter, on or before the 15th day of the second month following such calendar quarter. Nothing contained herein shall be construed as requiring any person to file more than one form BM-1 in any month, or more than one form BM-2 in any calendar quarter, except that a separate report shall be filed for each plant in which such person uses fats and oils.

(2) Beginning with the third calendar quarter of 1944 every manufacturer subject to (b) (1) hereof shall file, on Form FDO 42-5, a quarterly report of his use of fats and oils in soap. Such report shall be filed on or before the 20th day of the month succeeding such calendar quarter.

(3) Every person subject to this order shall, for at least two years (or for such period of time as the Director may designate), maintain an accurate record of his production of and transactions in fats and oils.

(m) Existing contracts. The restrictions of this order shall be observed without regard to existing contracts or any rights accrued or payments made thereunder.

(n) Audits and inspections. The Director shall be entitled to make such audit or inspection of the books, records and other writings, premises or stocks of fats and oils of any person and to make such investigations as may be necessary or appropriate, in his discretion, to the enforcement or administration of the provisions of this order.

(o) Petition for relief from hardship. Any person affected by this order who considers that compliance herewith would work an exceptional or unreasonable hardship on him may file a petition for relief with the Order Administra-Petitions shall be in writing and shall set forth all pertinent facts and the nature of the relief sought. The Order Administrator may take anv action with reference to such petition which is consistent with the authority delegated to him by the Director. If the petitioner is dissatisfied with the action taken by the Order Administrator he may, by request addressed to the Order Administrator, obtain a review of such action by the Director. After said review, the Director may take such action as he deems appropriate, which action shall be final.

(p) Violations. Any person who violates any provision of this order may, in accordance with the applicable procedure, be prohibited from receiving, making any deliveries of or using fats and oils. Any person who wilfully violates any provision of this order is guilty of a crime and may be prosecuted under any and all applicable laws. Civil action may also be instituted to enforce any liability or duty created by, or to enjoin any violation of any provision of this order.

(q) Effect of other orders. So far as any other war food order heretofore or hereafter issued limits or curtails to a greater extent than herein provided, the use, acquisition, or disposition of any fat or oil, the limitations of such other order shall control.

(r) Communications. All reports required to be filed hereunder and all communications concerning this order shall, unless herein otherwise provided, be addressed to the Order Administrator, War Food Order No. 42, Fats and Oils Branch Office of Distribution, War Food Administration, Washington 25, D. C.

(s) Delegation of authority. The administration of this order and the powers vested in the War Food Administrator, insofar as such powers relate to the administration of this order, are hereby delegated to the Director. The Director is authorized to redelegate to any employee of the United States Department of Agriculture any or all of the authority vested in him by this order.

(t) Territorial scope. This order shall apply within the 48 States and the District of Columbia.

(u) Effective date. This order shall become effective at 12:01 a. m., e. w. t., September 30, 1944.

(Turn to Page 224)

### HIGH LAURIC ACID OILS WFO-43

RESTRICTIONS ON USE, PROCESSING, SALE, AND DELIVERY OF COCOANUT, BABASSU, PALM KERNEL, AND OTHER HIGH LAURIC ACID OILS.

Pursuant to authority vested in me by Executive Order No. 9280, dated December 5, 1942, and to assure an adequate supply and efficient distribution of cocoanut, babassu, palm kernel, and other high lauric acid oils to meet war and essential civilian needs, *It is hereby ordered*, As follows:

§ 1460.10 Use processing, sale, and delivery of cocoanut, babassu, palm kernel, and other high lauric acid oils restricted—(a) Definitions. When used in this order, unless otherwise distinctly expressed or manifestly incompatible with the intent thereof:

(1) The term "high lauric acid oils" means cocoanut oil, babassu oil, palm kernel oil, and all other oils having a lauric acid content of thirty-five per cent (35%) or higher, whether crude, refined, bleached, or deodorized.

(2) The term "person" means any individual, partnership, corporation, association, or other business entity.

(3) The term "Director" means the Director of Food Distribution, United States Department of Agriculture, or any employee of the United States Department of Agriculture designated by such Director.

(b) Prohibited uses. The use or consumption by any person of high lauric acid oils in the following manufactures, processes, or uses is prohibited:

(1) Any manufacturer, process, or use in which glycerine is not produced;

(2) Any manufacture or process in which glycerine is produced, where the recovery of glycerine does not meet the requirements of Food Distribution Order No. 33. (8 F.R. 3475)

(c) Permitted uses. (1) Any person may use or consume high lauric acid oils without regard to the restrictions imposed by paragraphs (b) (1) and (b) (2) hereof, in the following instances:

(i) Where the total use or consumption of high lauric acid oils by any person is less than 3,000 pounds in each of the several three month periods of the year commencing January 1, April 1, July 1, and October 1; or

(ii) Where any person uses or consumes Tucum and Muru-muru oils in the manufacture of any edible product, without limitation on such use or consumption: Provided, That such use or consumption shall be subject to the provisions of paragraph (f) hereof.

(2) Notwithstanding the provisions of paragraphs (c) (1) (i) and (ii) hereof, no person shall use or consume high lauric acid oils in the manufacture of any margarine, shortening, or cooking fats.

(d) Reports of unusable oils. Any high lauric acid oils at any time remaining in the hands of any person which, by reason of any of the provisions of paragraphs (b) (1) and (2) and (c) (1) (i), (ii) and (2) hereof, may not be used or consumed by him, shall be reported to the Director.

(e) Restrictions on processing. After the effective date of this order, no person shall process or change the condition of any high lauric acid oils in preparation for any manufacture or use permitted by this order, except to the extent necessary for such preparation and then only in such quantities as may be necessary to meet his normal production schedule or, if such oils are to be manufactured or used by another person, then the normal production schedule of such other person.

(f) Withholdings of high lauric acid oils. Every person who was required by

General Preference Order M-60 (7 F.R. 2185) of the War Production Board to set aside an inventory quota shall use, put in process, sell, or deliver, all or any part of such inventory quota only upon express instruction of the Director: Provided, That this paragraph (f) shall not be construed to prevent crushing of copra or other seeds or nuts, or to prevent changing the condition of such oil so set aside to the extent necessary to prevent deterioration while carried in inventory. Such quota shall be held subject to the direction of the Director.

- (g) Restrictions on sales and deliveries. No person shall sell or, directly or indirectly, deliver, or cause to be delivered, any high lauric acid oils for any use prohibited by paragraphs (b) (1) and (2), and (c) (1) (i), (ii) and (2) hereof or in violation of paragraph (f) hereof; and no person shall accept deliveries of any high lauric acid oils for any prohibited use or for any greater quantities or proportions than permitted for consumption.
- (h) Intra-company transactions. The prohibitions or restrictions contained in this order with respect to deliveries shall, in the absence of a contrary direction, apply not only to deliveries to other persons, including affiliates and subsidiaries, but also to deliveries from one branch, division, or section of a single enterprise to another branch, division, or section of the same or any other enterprise owned or controlled by the same person.
- (i) Existing contracts. The restrictions of this order concerning the use, processing, sale, and delivery of high lauric acid oils shall be observed without regard to existing contracts or any rights accrued or payments made thereunder.
- (j) Records and reports. Every person subject to this order shall maintain such records for at least two years (or for such other periods of time as the Director may designate) and shall execute and file such reports upon such forms and submit such information as the Director may from time to time request or direct, and within such times as he may prescribe.
- (k) Bureau of the Budget approval. The reporting requirements of this order have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942. Subsequent specific record keeping or reporting requirements by the Director will be subject to the approval of the Bureau of the Budget pursuant to the Federal Reports Act of 1942.
- (1) Audits and inspections. Every person subject to this order shall, upon request, permit inspections of his stocks of cocoanut, babassu, palm kernel, and other high lauric acid oils, and premises used in his business and all of his books, records, and accounts shall, upon request, be submitted to audit and inspection by the Director.

- (m) Petition for relief from hard-ship. Any person affected by this order who considers that compliance herewith would work an exceptional and unreas-onable hardship on him, may petition in writing (in triplicate) for relief to the Director, setting forth all pertinent facts and the nature of the relief sought. The Director may thereupon take such action as he deems appropriate and such action shall be final.
- (n) Violations. An person who willfully violates any provision of this order or who by any act or omission falsifies records to be kept or information to be furnished pursuant to this order or willfully conceals a material fact concerning a matter within the jurisdiction of any Department or agency of the United States may be prohibited from receiving or making further deliveries of any material subject to allocation; and such further action may be taken against him as the Director deems appropriate, including recommendations for prosecution under section 35a of the Criminal Code (18 U.S.C. 1940 ed. 80), under paragraph 5 of section 301 of Title III of the Second War Powers Act, and under any and all other applicable laws.
- (o) Communications to the Department of Agriculture. All reports required to befiled hereunder and all communi-

cations concerning this order shall, unless otherwise directed, be addressed to: Director of Food Distribution, United States Department of Agriculture, Washington, D. C., Ref.: FD 43.

- (p) General Preference Order M-60 of the War Production Board superseded. This order supersedes in all respects General Preference Order M-60 (7 F.R. 2185) of the War Production Board, except that as to violations of said order or rights accrued, liabilities incurred, or appeals taken under said order prior to the effective date hereof, said General Preference Order M-60 shall be deemed in full force and effect for the purpose of sustaining any proper suit, action, or other proceeding with respect to any such violation, right, or liability. Any appeal pending under said order shall be considered under paragraph (m) hereof.
- (q) Territorial extent. This order applies to all persons in the United States, its territories and possessions, and the District of Columbia.
- (r) Effective date. This order shall be effective on April 1, 1943, as of 12:01 a. m., e. w. t.

(E.O. 9280, 7 F.R. 10179)

Issued this 31st day of March 1943
[SEAL] CLAUDE R. WICKARD,
Secretary of Agriculture.

### TALLOW & GREASE INVENTORIES WFO-67

AMDT. 6, MAR. 2, 1945

War Food Order No. 67, as amended (8 F.R. 15810, 9 F.R. 4319, 6147), is further amended to read as follows:

- § 1460.27 Restrictions on deliveries and inventories of inedible tallow or grease—(a) Definitions. (1) "Inedible tallow or grease" means all grades and qualities, and stearines produced therefrom, excluding garbage grease, wool (grease) fat, grease (lard) oil, neat's foot oil and stock, stearic acid, and red oil.
- (2) "Producer" means any person whose operations result in the production of inedible tallow or grease.
- (3) "Dealer" means any person who acquires inedible tallow or grease for resale, regardless of whether such person blends or mixes such inedible tallow or grease.
- (4) "Manufacturer" means any person who uses inedible tallow or grease in the manufacture of any other product, including mixed fatty acids.
- (5) "Inventory means the total quantity of inedible tallow or grease owned by any person, wherever located, and all the inedible tallow or grease for which such person holds a contract for delivery to him in the future. The term

shall include all inedible tallow grease in process up to the point at which it ceases to exist as such, by reason of saponification, neutralization, pressing, distillation, or compounding with non-fatty materials.

- (6) "Base period" means the period from July 1, 1944, to December 31, 1944, both inclusive.
- (7) "Base period production" means the total quantity of inedible tallow or grease (i) produced during the base perriod, or (ii) established as the base period production under paragraph (n) hereof.
- (8) "Base period deliveries" means the total quantity of inedible tallow or grease delivered to other persons during the base period.
- (9) "Base period use" means the total quantity of inedible tallow or grease (i) used during the base period, or (ii) established as the base period use under paragraph (n) hereof.
- (10) "Commercial quantity" means a tank car, a tank truck, a carload of packages, or a truck load of packages.
- (11) "Maximum unit" means the largest single, segregate, commercial quantity of inedible tallow or grease

shipped to and accepted by any person during the base period.

- (12) "Certified order" means a written order to a producer or dealer which has attached thereto or incorporated therein a certificate executed in accordance with paragraph (c) hereof.
  - (13) "Month" means calendar month.
- (14) "Continental United States" means the 48 States and the District of Columbia.
- (15) "Soap" means the water soluble product formed by the saponification or neutralization of fats, oils, rosins, or their fatty acids with organic, sodium or potassium bases, or any detergent composition containing such products.
- (16) "Person" means any individual, partnership, association, business trust, corporation, or any organized group of persons whether incorporated or not.
- (17) "Director" means the Director of Marketing Services, War Food Administration.
- (b) Delivery restrictions. Except as specifically authorized by the Director, no producer or dealer shall, in any month, deliver inedible tallow or grease to any manufacturer on uncertified orders unless and until he has, before the end of such month, filled or offered to fill all certified orders received by him within the 20-day period immediately prior to the 10th day of such month, provided that:
- (1) No producer or dealer shall be required to deliver or offer to deliver inedible tallow or grease in any amount less than a commercial quantity or less than the smallest commercial quantity delivered by him in the base period;
- (2) No producer shall be required, in any month, to deliver or offer to deliver on certified orders from any one plant more than 30 per cent of the total quantity of inedible tallow or grease delivered from such plant in such month;
- (3) No dealer shall be required, in any month, to deliver or offer to deliver on certified orders more than 30 per cent of the total quantity of inedible tallow or grease delivered by him in such month.
- (c) Certified orders. (1) Any manufacturer who desires inedible tallow or grease for use in the manufacture of any product other than soap or any type, grade or kind of inedible tallow or grease except stearines may, within a 20-day period immediately prior to the 10th day of any month, transmit to his supplier a written order which has attached thereto or incorporated therein a properly executed certificate in the following form:

The undersigned hereby certifies to the War Food Administration and to......

(Producer

...... that he is familiar with the or dealer) terms of War Food Order No. 67, that

this certificate is furnished in order to enable the undersigned to obtain preferred delivery, in accordance with War Food Order No. 67, of.....pounds of inedible tallow or grease on or about.....,

(Date of delivery) and that he will use all of such inedible tallow or grease in the manufacture of a product other than soap or any type, grade or kind of inedible tallow or grease except stearines. The undersigned further certifies that the receipt by him of such inedible tallow or grease will not cause his inventory to exceed the amount permitted under War Food Order No. 67.

By .....(Purchaser)

(Authorized official)

(Date)

- (2) No manufacturer who receives inedible tallow or grease under a certified order shall use any part thereof in the manufacture of soap or in the manufacture of any type, grade or kind of inedible tallow or grease except stearines.
- (d) Inventory restrictions. Except as herein otherwise provided:
- (1) No producer shall produce inedible tallow or grease in any quantity which will cause his inventory to exceed 1/12 of his base period production;
- (2) No dealer shall accept delivery of inedible tallow or grease in any quantity which will cause his inventory to exceed 1/12 of his base period deliveries;
- (3) No manufacturer shall accept delivery of inedible tallow or grease in any quantity which will cause his inventory to exceed 5/12 of his base period use;
- (4) No person who, under the provisions of this order, falls within two or more of the following classifications—producer, dealer, or manufacturer—shall produce or accept delivery of incedible tallow or grease in any quantity which will cause his inventory to exceed the largest amount he is permitted to have under one of the foregoing paragraphs: (d) (1), (d) (2), or (d) (3).
- (e) Inventory exemption; maximum units. (1) Any dealer whose inventory does not exceed 1/24 of his base period deliveries may accept delivery of one maximum unit.
- (2) Any maunfacturer whose inventory does not exceed 1/6 of his base period use may accept delivery of one maximum unit.
- (f) Inventory exemption; OPA ceiling prices. (1) Any producer or dealer who can not obtain purchasers for his inedible tallow or grease at the maximum prices established by the Office of Price Administration may increase his inventory above the applicable limitations of (d) hereof, provided that such producer or dealer shall not thereafter refuse or

fail to deliver inedible tallow or grease to buyers offering to purchase at such maximum prices until his inventory again falls within the applicable limitations of paragraph (d).

- (2) Any manufacturer may increase his inventory above the applicable limitations of paragraph (d) hereof by purchases at prices below the maximum prices established by the Office of Price Administration provided that such manufacturer shall not thereafter buy additional inedible tallow or grease at such maximum prices until his inventory again falls within the applicable limitations of paragraph (d).
- (g) Inventory exemption; imported tallow or grease. Any manufacturer may increase his inventory above the applicable limitations of paragraph (d) by the acceptance of delivery of inedible tallow or grease imported into the continental United States, if such inedible tallow or grease was imported by such manufacturer or his agent, or is delivered to him by a governmental agency, provided that such manufacturer shall not thereafter accept delivery of inedible tallow or grease produced within the continental United States, except in accordance with paragraph (f) (2) hereof, until his inventory falls within the applicable limitations of paragraph (d).
- (h) Transfers between branches or plants. The transfer of inedible tallow or grease between branches, plants, or companies owned, controlled or directed by the same person but engaged in separate activities as producers, dealers, or manufacturers, shall constitute delivery or acceptance of delivery within the meaning of this order.
- (i) Records and reports. (1) All certified orders and all certificates executed under (c) hereof shall be retained for at least two years and shall, upon request, be submitted to the Director for inspection. All statements contained in such certificates shall be deemed representations to an agency of the United States. No person shall be entitled to rely upon any such certificate if he knows or has reasonable cause to believe it to be false.
- (2) The Director shall be entitled to obtain such information from and require such reports and the keeping of such records by, any person, as may be necessary or appropriate, in his discretion, to the enforcement or administration of the provisions of this order.
- (3) Every person subject to this order shall, for at least two years (or for such other period of time as the Director may designate) maintain an accurate record of his production of and transactions in inedible tallow or grease.
- (j) Existing contracts. The restrictions of this order shall be observed with-

out regard to existing contracts or any rights accrued or payments made thereunder.

- (k) Audits and inspections. The Director shall be entitled to make such audits or inspections of the books, records, and other writings, premises, or stocks of inedible tallow or grease of any person, and to make such investigations as may be necessary or appropriate, in his discretion, to the enforcement or administration of the provisions of this order.
- (1) Petition for relief from hardship. Any person affected by this order who considers that compliance herewith would work an exceptional or unreasonable hardship on him may file a petition for relief with the Order Administrator. Petitions shall be in writing and shall set forth all pertinent facts and the nature of the relief sought. The Order Administrator may take any action with reference to such petition which is consistent with the authority delegated to him by the Director. If the petitioner is dissatisfied with the action taken by the Order Administrator, he may, by request addressed to the Order Administrator, obtain a review of such action by the Director. After said review, the Director may take such action as he deems appropriate, which action shall be
- (m) Violations. Any person who violates any provision of this order may, in accordance with the applicable procedure, be prohibited from receiving, making any deliveries of, or using inedible tallow or grease. Any person who wilfully violates any provision of this order is guilty of a crime and may be prosecuted under any and all applicable laws. Civil action may also be instituted to enforce any liability or duty created by, or to enjoin any violation of, a provision of this order.
- (n) Delegation of authority. (1) The Director may, upon application, establish a base period production for any producer who did not produce inedible tallow or grease during the base period, or a base period use for any manufacturer who did not use inedible tallow or grease during such period.
- (2) The administration of this order and the powers vested in the War Food Administrator, insofar as such powers relate to the administration of this order, are hereby delegated to the Director. The Director is authorized to redelegate to any employee of the United States Department of Agriculture any or all of the authority vested in him by this order.
- (o) Communications. All reports required to be filed hereunder and all communications concerning this order shall, unless otherwise provided, be addressed to the Order Administrator, War Food Order No. 67, Fats and Oils Branch, Office of Marketing Services, War Food Administration, Washington 25, D. C.

- (p) Territorial scope. This order shall apply within the 48 states and the District of Columbia.
- (q) Partial suspension of War Food Order No. 67 terminated. The order suspending certain provisions of War Food Order No. 67, as amended, issued October 16, 1944 (9 F.R. 12607), is hereby terminated.
- (r) Effective date. This order shall become effective at 12:01 a. m., e. w. t., March 3, 1945. With respect to violations, rights accrued, liabilities incurred, or appeals taken, prior to said date, under War Food Order No. 67, as amended, all provisions of said order shall be

deemed to remain in full force for the purpose of sustaining any proper suit, action, or other proceeding with respect to any such violation, right, liability, or appeal.

Note: All record-keeping requirements of this order have been approved by, and all subsequent reporting and record-keeping requirements, will be subject to the approval of, the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

(E.O. 9280, 7 F.R. 10179; E.O. 9322, 8 F.R. 3807; E.O. 9334, 8 F.R. 5423; E.O. 9382, 8 F.R. 14783)

Issued this 2d day of March 1945.

Ashley Sellers,

Assistant War Food Administrator.

### WOOL FAT WFO-76

AMDT. 3 SEPT. 11, 1944

War Food Order No. 76, as amended (8 F.R. 11465, 9 F.R. 4319), is further amended to read as follows:

- § 1460.28 Restrictions on production, sale, and delivery of wool fat—(a) Definitions—(1) "Wool fat" means that fat or grease extracted from wool by whatever means including all types, grades, and kinds recovered. The term also includes Adeps Lanae; USP Lanolin, Technical Lanolin, Neutral Wool Fat (grease), Neutral Degras of all grades and types, common or crude Degras, and common or crude wool grease and wool waxes, alcohols, or other derivatives of wool fat.
- (2) "Lanolin" means any wool fat equivalent to or of a higher grade than technical lanolin as defined in section 13.1 of Maximum Price Regulation 53, issued August 8, 1944, by the Office of Price Administration. The term shall include both hydrous and anhydrous grades of Adeps Lanae, USP Lanolin, Cosmetic Lanolin, Technical Lanolin, and any wool fat or wool fat product represented and sold as lanolin.
- (3) "Cosmetics" means all products intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance, including, but not limited to, toilet soaps containing wool fat, shaving creams containing wool fat, hand lotions, after shaving lotions, and hair dressings and tonics.
- (4) "Producer" means any person engaged in recovering any type or grade of wool fat regardless of whether such person further refines such wool fat.
- (5) "Refiner" means any person engaged in the refining of wool fat.
- (6) "Distributor" means any person who acquires wool fat for resale without further refining.

- (7) "User" means any person (except a refiner of wool fat) who is engaged in the manufacture of any product by any process which requires the use of wool fat, regardless of whether wool fat is incorporated into such product.
- (8) "Current rate of consumption" means the quantity of wool fat used during the preceding a 30-day period or the quantity scheduled to be used during the ensuing 30-day period.
- (9) "Inventory" means the total quantity of wool fat or lanolin, as the case may be, owned by any person at any particular time.
- (10) "Certified order" means a written order to a supplier of wool fat which has attached thereto or incorporated therein a certificate executed in accordance with (b) (2) hereof.
- 11) "Base period" means the calendar years 1941 and 1942, or such other period as may be established by the Director.
- (12) "Person" means any individual, partnership, association, business trust, corporation, or any organized group of persons whether incorporated or not.
- (13) "Director" means the Director of Distribution, War Food Administration.
- (b) Certified orders. (1) Except as specifically authorized by the Director, no person shall, in any calendar month, sell or deliver wool fat to any user on other than certified orders, unless and until he has filled or offered to fill all certified orders received by him on or before the 16th day of such month.
- (2) Any user who desires wool fat for any purpose other than non-military fur dressing, or the manufacture of cosmetics or mechanic's hand soap, may, prior to the delivery of such wool fat, transmit to his supplier a written order which has attached thereto or included therein a properly executed certificate in substantially the following form:

The undersigned hereby certifies to the War Food Administration and to......

Supplier that he is familiar with the terms of War Food Order No. 76, that this certificate is furnished to enable the undersigned to obtain delivery of......pounds of wool fat on or about...., and Date

that no part of such wool fat will be used for the non-military dressing of furs or for the manufacture of cosmetics or mechanic's hand soap.

- (3) No person who receives wool fat pursuant to a certified order shall use any part of such wool fat for non-military fur dressing, or for the manufacture of cosmetics or mechanic's hand soap.
- (c) Deliveries for use in cosmetics. (1) No person shall sell or deliver wool fat for use in the manufacture of cosmetics in excess of such percentage as may be authorized from time to time by the Director, of the yearly average amount of wool for such purpose during the base period.
- (2) No person shall sell or deliver wool fat for use in the manufacture of cosmetics unless and until he has notified the Order Administrator of his total sales and deliveries of wool fat direct to cosmetic manufacturers during the base period.
- (d) Inventories.—(1) No person shall produce lanolin in any amount which will cause his inventory thereof to exceed a quantity equal to a month's supply based upon his deliveries of lanolin during the preceding calendar month.
- (2) No distributor shall accept delivery of lanolin or wool fat other than lanolin in any amount which will cause his inventory of either of such products to exceed a quantity equal to a month's supply based upon his deliveries during the preceding calendar month.
- (3) No user shall accept delivery of wool fat in any amount which will cause his inventory thereof to exceed (i) a quantity equal to a month's supply based upon his current rate of consumption, or (ii) 600 pounds, whichever is the greater.
- (4) Except as specifically authorized by the Director, no person shall deliver wool fat to any user or distributor unless he receives, together with the order for such wool fat, a properly executed certicate in substantially the following form:

The undersigned hereby certifies to the War Food Administrator and to...... that

(Supplier)
he is familiar with the terms of War
Food Order No. 76, and that the acceptance of delivery of......
pounds of .....covered

(Specify type or grade of wool fat) by the attached order will not cause his inventory to exceed:

- \* A quantity of wool fat equal to a month's supply based upon the current rate of consumption;
- \* 600 pounds;
- \* A quantity of lanolin equal to a month's supply based upon deliveries during the preceding month;
- \* A quantity of wool fat other than lanolin equal to a month's supply based upon deliveries during the preceding month.

Date Deliveree
By ......Title

- (5) Notwithstanding any other provision of (d) hereof, any person may deliver or accept delivery of wool fat in quantities of 10 pounds or less for any purpose other than the manufacture of cosmetics. No certificate shall be required for any such delivery or acceptance of delivery.
- (e) Transfers between departments or plants. The transfer of wool fat between units, departments, plants, or companies owned, controlled, or directed by the same person shall constitute delivery or acceptance of delivery within the meaning of this order.
- (f) Existing contracts. The restrictions of this order shall be observed without regard to existing contracts or any rights accrued or payments made thereunder.
- (g) Records and reports. (1) Every person who uses more than 1,200 pounds of wool fat in any calendar quarter shall properly fill out and mail to the Bureau of the Census, Washington 25, D. C., Bureau of the Census Form BM-1 for each month, on or before the 15th day of the tollowing month, and Bureau of the Census Form BM-2 for each calendar quarter, on or before the 15th day of the second month following such calendar quarter. Nothing contained herein shall be construed as requiring any person to file more than one Form BM-1 in any month or more than one Form BM-2 in any calendar quarter, except that a separate report shall be filed for each plant in which such person uses wool fat.
- (2) Every producer of wool fat shall, within 15 days after the end of each calendar month, properly fill out and mail to the Order Administrator one copy of Form FDA-4/6 showing his actual and estimated production, deliveries, and stocks of wool fat.
- (3) Every refiner of wool fat shall, within 15 days after the end of each calendar month, properly fill out and mail to the Order Administrator one copy of
- \* Strike inapplicable provisions.

- Form FDA-476 showing his actual and estimated production, deliveries, and stocks of lanolin, and his actual and estimated production, deliveries, and stocks of wool fat other than lanolin.
- (4) All certificates executed under this order shall be retained for inspection by and delivery to the Director upon request. All statements contained in such certificates shall be deemed representations to an agency of the United States. No person shall be entitled to rely upon any such certificate if he knows or has reasonable cause to believe it to be false.
- (h) Audits and inspections. The Director shall be entitled to make such audit or inspection of the books, records and other writings, premises or stocks of wool fat of any person, and to make such investigations as may be necessary or appropriate, in his discretion, to the enforcement or administration of the provisions of this order.
- (i) Petition for relief from hardship. Any person affected by this order who considers that compliance herewith would work an exceptional or unreasonable hardship on him may file a petition for relief with the Order Administrator. Petitions shall be in writing and shall set forth all pertinent facts and the nature of the relief sought. The Order Administrator may take any action with reference to any petition which is consistent with the authority delegated to him by the Director. If the petitioner is dissatisfied with the action taken by the Order Administrator, he may, by a request addressed to the Order Administrator, obtain a review of such action by the Director. After said review, the Director may take such action as he deems appropriate, which action shall be final.
- (j) Violations. Any person who violates any provision of this order may, in accordance with the applicable procedure, be prohibited from receiving, making any deliveries of, or using wool fat. Any person who wilfully violates any provision of this order is guilty of a crime and may be prosecuted under any and all applicable laws. Civil action may also be instituted to enforce any liability or duty created by, or to enjoin any violation of, any provision of this order.
- (k) Communications. All reports required to be filed hereunder and all communications concerning this order shall, unless otherwise provided, be addressed to the Order Administrator, War Food Order No. 76, Fats and Oils Branch, Office of Distribution, War Food Administration, Washington 25, D. C.
- (1) Delegation of authority. (1) The administration of this order and the powers vested in the War Food Administrator, insofar as such powers relate to the administration of this order, are hereby delegated to the Director. The Director is authorized to redelegate to any employee of the United States De-

partment of Agriculture any or all of the authority vested in him by this order.

- (2) The Director is authorized to establish additional regulations governing the use or consumption of wool fat, or the quantity thereof held in storage or inventory by any person, whenever he finds such regulations necessary to effectuate the purposes of this order.
- (m) Territorial scope. This order shall apply within the 48 States and the District of Columbia.
- (n) Effective date. This order shall become effective at 12:01 a. m., e. w. t., October 1, 1944. With respect to violations, rights accrued, liabilities incurred or appeals taken, prior to said date, under

War Food Order No. 76, as amended, all provisions of said order shall be deemed to remain in full force for the purpose of sustaining any proper suit, action, or other proceeding with respect to any such violation, right, liability, or appeal.

Note: All reporting and record-keeping requirements of this order have been approved by and all subsequent reporting and record-keeping requirements will be subject to the approval of the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

(E.O. 9280, 7 F.R. 10179; E.O. 9322, 8 F.R. 3807; E.O. 9334, 8 F.R. 5423; E.O. 9392, 8 F.R. 14783)

Issued this 11th day of September 1944.

Ashley Sellers,

Assistant War Food Administrator.

### ROSIN M-387

PART 3293—CHEMICALS
[Conservation Order M-387]
ROSIN

The fulfillment of requirements for the defense of the United States has created a shortage in the supply of rosin for defense, for private account and for export; and the following order is deemed necessary and appropriate in the public interest and to promote the national defense:

- § 3293.646 Conservation Order M-387—(a) Definitions. (1) "Rosin" means gum rosin and wood rosin as defined in the Naval Stores Act of March 3, 1923, or the gum or wood rosin content of any intermediate product.
- (2) "Intermediate product" means any product containing gum or wood rosin capable of use in the manufacture of a Schedule A or B product. The term includes but is not limited to mixing varishes containing rosin, esterified rosin (ester gum), rosin-modified phenolic resin, rosin-modified maleic resin, and the following products as defined in General Preference Order M-340: heat-treated rosin, stabilized rosins, polymerized rosin and metal resinates.
- (3) "Manufacturer" means any person who uses rosin in the manufacture of any product.
- (4) "Producer" means any person who produces gum or wood rosin.
- (5) "Rosin quota" means the amount of rosin any manufacturer may use in any calendar quarter for the manufacture of any product on Schedules A or B. Each manufacturer has a separate rosin quota for each product on Schedules A and B. His quota for a Schedule A product amounts to the percentage (set opposite that product) of quantity of rosin he put into process for the manufacture of that product to fill all orders

(both preferred and civilian) during the corresponding calendar quarter of 1944. His quota for a Schedule B product amounts to the percentage (set opposite each product) of the quantity of rosin he put into process for the manufacture of that product to fill civilian orders only during the corresponding calendar quarter of 1944.

- (6) "Three months inventory" means a quantity equal to one quarter of a person's total consumption of gum and wood rosin (including gum and wood rosin put in process) during the calendar year 1944, for the manufacture of all products containing rosin. The term inventory includes inventory at factory, in storage on and off the premises, and in transit to factory or storage.
- (7) "Six months inventory" means a quantity equal to one half of a person's total consumption of gum and wood rosin (including gum and wood rosin put in process) during the calendar year 1944, for the manufacture of all products containing rosin. The term inventory includes inventory at factory, in storage on and off the premises, and in transit to factory or storage.
- (8) "Preferred order" means a purchase order for a product (i) if the order is rated under Preference Rating Orders P-65 or P-149; or (ii) if the product is to be delivered to, used on, or incorporated in material and equipment to be delivered to the United States Army, Navy, Marine Corps, Coast Guard, Veterans' Administration, Maritime Com mission, War Shipping Administration, War Food Administration, Bureau of Engraving and Printing, United States Government Printing Office, Panama Canal, Office of Scientific Research and Development, or any Government agency, pursuant to the Act of March 11, 1941, entitled "An Act to Promote the De-

fense of the United States" (Lend-Lease Act).

- (9) "Civilian order" means any purchase order that is not a "preferred order" as defined above.
- (10) "Printing ink" includes any fluid or viscous material or composition of materials used in printing, impressing, stamping, or transferring upon paper or paper-like substances, wood, fabrics or metals by the recognized mechanical reproductive processes employed in printing, publishing and related service industries.
- (11) "Protective coating" means any liquid organic coating, thinner, or remover which either alone or mixed with other materials is normally applied to any surface by brush, spray, dip, roller coat, or other method of application. The term includes but is not limited to paint, varnish, enamel, lacquer, dope, lacquer or dope thinner, paint or varnish remover, and stain. The term does not include adhesive, cement, printing ink, coating for the manufacture of coated fabric, coating for leather (limited to hides, skins and splits, etc., which have not been incorporated into any product) and coating for footwear (of any material, including leather).
- (12) "Put into process" means the first change made by a manufacturer in the chemical or physical properties of gum or wood rosin, or any intermediate product, in the manufacture of a Schedule A or B product.
- (b) Restrictions on use. (1) During the period from February 28 through March 31, 1945, inclusive, no manufacturer shall put into process for the manufacture of any product on Schedule A or B, more rosin than ½ of his rosin quota for the manufacture of that product.
- (2) During the second calendar quarter of 1945, and during each calendar quarter thereafter, no manufacturer shall put into process for the manufacture of any product on Schedule A or B, more rosin than his rosin quota for the manufacture of that product.
- (3) Rosin put into process to fill "preferred orders" for Schedule B products after February 28, 1945, shall not be charged against any rosin quota, notwithstanding paragraphs (b) (1) and (2) above.
- (c) End of quarter carry-over. If, in any calendar quarter, a manufacturer does not use all of his rosin quota for the manufacture of any Schedule A or B product, the unused balance may be carried forward and used only in the succeeding calendar quarter for the manufacture of that product. For example, if a manufacturer has a quota of 50,000 pounds per quarter for the manufacture of adhesives, and uses only 30,000 pounds in the first quarter of 1945, he has a carry-over of 20,000 pounds which he may consume for the manufacture of adhesives in the second quarter of 1945 in addition to his regular quota of 50,000

pounds. If, however, in the second quarter of 1945, he actually consumes only 40,000 pounds for adhesives, he has a carry-over for the third quarter of 1945 of only 10,000 pounds, viz., the difference between what was actually consumed (40,000 pounds) and his regular quota for that quarter (50,000 pounds). The 20,000 pounds carry-over from the first quarter of 1945 is disregarded in determining the unused balance of his quota at the end of the second quarter of 1945.

(d) Toll arrangements. For the purpose of this order a toll arrangement is an arrangement under which rosin owned by one person (referred to as "the owner") is manufactured into a Schedule A or B product for the owner by another person (referred to as the "processor"). Toll arrangements are subject to the following restrictions.

(1) Any quantity of rosin put into process for the production of any product on Schedule A or B under toll arrangement during any calendar quarter shall be charged against the owner's rosin quota instead of the processor's, if the owner manufactured the product himself or had it manufactured for him during the corresponding calendar quarter of 1944.

(2) Any quantity of rosin put into process, under toll arrangement during any calendar quarter, for the production of any product on Schedule A or B, must be charged against the rosin quota of the processor and not against the rosin quota of the owner, if the owner did not manufacture that product nor have it manufactured for him during the corresponding quarter of 1944.

(3) Any processor who is offered rosin for processing on toll arrangement shall assume that he is required to charge the rosin against his own rosin quota, unless he is advised in writing by the owner that the owner manufactured the same product during the calendar quarter of 1944 corresponding to the calendar quarter in which the rosin is to be put in process, and that the quantity offered can and will be charged against the owner's rosin quota.

(e) Method of computing rosin content of intermediate products. A manufacturer must charge against his rosin quota for the particular calendar quarter the production of the particular Schedule A or B product, the rosin content of any intermediate product as well as the quantity of gum and wood rosin which he puts into process in that quarter for that purpose. Each manufacturer therefore may take into consideration, when figuring the amount of his rosin quota for that product, the rosin content of all intermediate products which he put into process in the manufacture of that product in the corresponding quarter of the year 1944, in addition to the quantity of gum and wood rosin which he put into process for the same purpose in that quarter. In figuring the rosin content of the intermediate

products listed below, a manufacturer shall use the estimated rosin content appearing after each of those intermediate products in order to determine both his consin quota and his current consumption. For all other intermediate products, the rosin content must be ascertained.

ucts shall be regarded as completed when no further processing remains to be done. The term inventory includes inventory at factory, in storage on and off the premises, and in transit to factory or storage.

(i) One time report. On or before

Intermediate products	Estimated rosin content
Mixing varnishes, containing rosin	1¼ lbs. of rosin per gal. of mixing varnish.
Esterified rosin	96 lbs. of rosin per 100 lbs. of resin.
Rosin-modified phenolic resin	85 lbs. of rosin per 100 lbs. of resin.
Rosin-modified maleic resin	80 lbs. of rosin per 100 lbs. of resin.
Heat-treated rosins	100 lbs. of rosin per 100 lbs. of heat-treated rosins.
Stabilized rosins	100 lbs. of rosin per 100 lbs. of stabilized rosins.
Polymerized rosins	100 lbs. of rosin per 100 lbs. of polymerized rosins.
	90 lbs. of rosin per 100 lbs. of metal resinates.

- (f) Inventory restrictions on gum and wood rosin. On and after February 28, 1945.
- (1) No manufacturer (who is not also a producer) shall accept any delivery of gum or wood rosin which shall result in his having more than a three months inventory of gum and wood rosin in the aggregate.
- (2) No manufacturer (who is also a producer) shall accept any delivery of gum or wood rosin which shall result in his having more than a six months inventory of gum and wood rosin in the aggregate.

The term inventory includes inventory at factory, in storage on and off the premises, and in transit to factory or storage.

(g) Restrictions on delivery of gum and wood rosin. No producer or distributor of gum or wood rosin, shall deliver gum or wood rosin to a manufacturer and no manufacturer shall accept delivery, unless the manufacturer certifies to the producer or distributor that acceptance of delivery will not result in his having an inventory in excess of the applicable restrictions in paragraph (f) of this order. The certification, signed manually or as provided in Priorities Regulation No. 1, may be endorsed on or attached to the purchase order, and should read substantially as follows:

Inventory certified—Ref: M-387, paragraph (g).

(Name of purchaser)

(Name and title of duly authorized official)

(h) Inventory restrictions on intermediate products. On and after February 28, 1945, no manufacturer shall consume gum or wood rosin, or intermediate products, in quantities which shall result in his having an inventory of intermediate products at any time in excess of the total rosin content of all intermediate products produced by him during the previous calendar quarter. The production of intermediate prodMarch 10, 1945, each manufacturer who put into process more than 2,700 pounds (5 drums) of rosin in the aggregate for all products (including Schedule A and B products and intermediate products) during any calendar quarter of 1944 shall file a one time base period use and inventory report on Form WPB-4132, in the manner prescribed therein. One copy of the report shall be retained and one copy shall be forwarded to the War Production Board, Chemicals Bureau, Washington 25, D. C., Ref: M-387. Separate reports are to be filed for each plant.

- (j) Quarterly report. Each manufacturer who puts into process more than 2,700 pounds (5 drums) of rosin during any calendar quarter for the production of Schedule A or B products, shall file a use and inventory report for that quarter on Form WPB-4131, in the manner prescribed therein, on or before the 20th day of the month following the close of that quarter. The initial reports, covering the first quarter of 1945, are due April 20, 1945. One copy of each report shall be retained and one copy shall be forwarded to the War Production Board, Chemicals Bureau, Washington 25, D. C. Separate reports are to be filed for each plant.
- (k) Appeals. Any appeal from this order must be filed by letter in duplicate addressed to the Chemicals Bureau, War Production Board, Washington 25, D. C., Ref: M-387, setting forth the reasons for the appeal and the necessary supporting information. Such information should include:
- (1) The Schedule A or B product for which the rosin will be used, and if a Schedule A product, what quantity of the rosin will be used to fill preferred orders and what quantity to fill civilian orders.
- (2) Period of time, not exceeding one calendar quarter, for which relief is requested.
- (3) Monthly schedule of the amount of rosin appellant would like to use for the particular product and the portion

of this which is in excess of the quota permitted by the order.

- (4) If the appeal is for an increase in cota to fill preferred orders, state the name of the procuring agency, the end use description, prime contract numbers and dates when the orders were received.
- (5) If the appeal is filed because the restriction of the order will prevent the filling of civilian orders of extreme urgency, give exact information as to the use of the product in which the rosin would be used, names of the customers, and preference ratings, if any, covering the orders.
- (6) Any other information pertinent to the appeal.

Ordinarily consideration will be given only to those appeals where compliance would work an exceptional and unreasonable hardship which is not suffered generally by others in the same industry or activity, and which show that the quota limits on the consumption of rosin will prevent the filling of "preferred or-ders" or more essential "civilian orders." Attention is called to the provisions in Priorities Regulation No. 16 with respect to manpower requirements which must be submitted with the appeal.

(1) Budget Burcau approval. The reporting requirements of this order have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

- (m) Applicability of regulations. This order and all transactions affected thereby are subject to all applicable regulations of the War Production Board, as amended from time to time.
- (n) Violations. Any person who wilfully violates any provision of this order, or who in connection with this order, wilfully conceals a material fact or furnishes false information to any department or agency of the United States, is guilty of a crime and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of, or from processing or using material under priority control and may be deprived of priorities assistance.
- (o) Communications to War Production Board. Communications concerning this order shall, unless otherwise directed, be addressed to the War Production Board, Chemicals Bureau, Washington 25, D. C., Ref: M-387.

Issued this 28th day of February, 1945.

WAR PRODUCTION BOARD,

By J. JOSEPH WHELAN, Recording Secretary. ufacturers and certain wholesalers at prices above maximum. On and after May 24, 1943, regardless of any contract, agreement, or other obligation:

- (a) No manufacturer shall sell-deliver, or transfer any household soaps or cleansers at prices higher than the maximum prices set forth in section 5 of this regulation.
- (b) No wholesaler shall sell, deliver, or transfer any household soaps or cleansers to a retail food store at prices higher than the maximum prices set forth in section 6 of this regulation.
- (c) No wholesaler shall buy or receive any such household soaps or cleansers in the course of trade or business at prices higher than the maximum prices set forth in section 5 of this regulation.
- (d) No retail food store shall buy or receive any such household soaps or cleansers in the course of trade or business at prices higher than the maximum prices set forth in section 6 of this regu-
- (e) None of the respective classes of persons in this section designated shall agree, offer, solicit, or attempt to do any of the foregoing acts which are by this section prohibited: Provided, That the provisions of this regulation shall not apply to sales or deliveries of household soaps or cleansers if prior to May 24, 1943, such household soaps and cleansers had been received by a carrier other than a carrier owned or controlled by the seller for shipment to the purchaser.
- § 2 Less than maximum Lower prices than those established by this regulation may be charged, paid, or offered.
- § 3 To what products, transactions, and persons this regulation applies and the relation to other regulations—(a) Products covered by this regulation. This regulation covers household soaps and cleansers.
- (1) "Household soaps and cleansers" are defined in detail for the purpose of this regulation in section 11.
- (b) Transactions covered by this regulation. (1) All sales of household soaps and cleansers by the manufacturer thereof except sales to any agency of the United States of a household soap or cleanser which is not packaged and distributed by the manufacturer for household use.
- (i) "Manufacturer" means a person
- (1) Produces a household soap or cleanser; or
- (2) Puts a household soap or cleanser into packages or cuts or stamps same into bars or cakes and sells said packages, bars or cakes under his own or another's brand name: or
- (3) Owns the brand name of a household soap or cleanser; or
- (4) Uses soap, soap products, soapless detergents or cleansers made by others as
- <sup>1</sup> ED. NOTE—Remainder of sentence added by Amdt. 4 (effective 1-2-45).

### SOAP PRICES MPR-391

MPR 391-Household Soaps and Cleansers Sold by Manufacturers and Certain Wholesalers Maximum Price Regulation No. 391 as amended to date

[Preamble] In the judgment of the Price Administrator, it is necessary to issue a regulation establishing dollars and cents maximum prices for certain sales of household soaps and cleansers by manufacturers and certain wholesalers.

A statement of the considerations involved in the issuance of this regulation has been issued simultaneously herewith and filed with the Divi-sion of the Federal Register.

Insofar as this regulation uses specifications and standards which were not, prior to such use, in general use in the trade or industry affected, or insofar as their use was not lawfully required by another Government agency, the Administrator has determined, with respect to such standardization, that no practicable alternative exists for securing effective price control with respect to the commodities subject to this regulation.

§ 1386.52 Maximum prices for household soaps and cleansers sold by manufacturers and certain wholesalers. Under the authority vested in the Price Administrator by the Emergency Price Control Act of 1942 as amended, and Executive Order No. 9250, Maximum Price Regulation No. 391 (Household Soaps and Cleansers sold by Manufacturers and Certain Wholesalers), which is annexed

\*ED. NOTE—Issued 5-14-43. 8 FR 6268 (effective 5-24-43).

hereto and made part hereof, is hereby issued.

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ARTICLE I-PROHIBITIONS AND SCOPE OF REGULATION

§ 1 Prohibition against dealing in household soaps and cleansers by man-

- a raw material, and by the addition of other materials makes a finished product which is sold for detergent uses.
- (2) All sales of household soaps and cleansers by a wholesaler to a retail food store.
- (i) "Wholesaler" means a person other than the owner of a brand name who purchases a household soap or cleanser and resells it without substantially changing its form to a retail food store. "Wholesaler" includes a person who puts a household soap or cleanser, not produced by him, into packages, or cuts or stamps same into bars or cakes, and sells said packages, bars, or cakes unbranded. A branch unit of any manufacturer which performs a wholesale function is deemed a wholesaler.
- (ii) "A retail food store" means a store in which 50 per cent or more of the gross dollar sales volume is from the sale of food products or the food department of any store.
- (c) Persons covered by this regulation.

  (1) All manufacturers as above defined of household soaps and cleansers. (See section 5 for manufacturer's maximum prices.)
- (2) All wholesalers of household soaps and cleansers who sell such commodities to retail food stores. (See section 6 for wholesaler's maximum prices.)
- (d) Applicability of the General Maximum Price Regulations. The provisions of this regulation supersede the provisions of the General Maximum Price Regulation with respect to sales and deliveries of household soaps and cleansers for which maximum prices are established by this regulation except for the provisions hereinafter indicated.
- (1) Section 1499.5 (Transfers of business or stock in trade).
- (2) Section 1499.11 (Base period records).
- (3) Revised Supplementary Regulation No. 1. (8 FR 4978.) (Exclusion of certain sales to and by United States agencies and war contracts with United States and other governments.)
- (e) Geographical applicability. The provisions of this regulation shall be applicable to the continental United States.
- (f) Export sales. The maximum price at which a person may export household soaps and cleansers shall be determined in accordance with the provisions of the Second Revised Maximum Export Price Regulation issued by the Office of Price Administration. (8 FR 4132.)
- (g) Import sales. The provisions of this regulation supersede the provisions of the Maximum Import Price Regulation and the General Maximum Price Regulation with respect to sales, deliveries, and transfers of imported household soaps and cleansers for which maximum prices are established by this regulation.

- § 4 Products, transactions, and persons not covered by this regulation.

  (a) The following products, persons, and transactions are not subject to the terms and conditions of this regulation.
- (1) Sales by a manufacturer of soap products which are not household soaps or cleansers. (For example, a sale of U.S.P. powdered or granulated castile soap to pharmaceutical manufacturers for use in the manufacture of tablets for medicinal use is not covered.)
- (2) Sales of household soaps and cleansers by a wholesaler to any person other than a retail food store. (For example, sales by a wholesaler to a retail drug store or dry goods store are not covered.)
- (3)<sup>1</sup> Sales by a manufacturer to any agency of the United States unless such sale is of a household soap or cleanser, packaged or distributed by the manufacturer for household use.
- (b) Each of the transactions stated in

  1 ED. NOTE--Added by Amdt. 4 (effective 1-2-45).

paragraph (a) above are covered by the General Maximum Price Regulation and the maximum prices therefor shall be the seller's maximum price as determined under such General Maximum Price Regulation.

### ARTICLE II—MAXIMUM PRICES AND TERMS OF SALE

§ 5 Maximum prices for sales of household soaps and cleansers by manufacturers. The maximum delivered prices before cash discount for carload quantities on sales of the household soaps and cleansers listed below by manufacturers thereof shall not exceed the prices listed therefor in the following table.

For instructions on methods of establishing maximum prices for unlisted household soaps and cleansers, for methods of establishing maximum prices on new size packs, and for sales of listed household soaps and cleansers in less than carload quantities see paragraphs (f), (g), and (h) at the end of this table.

Carload price

(a) Maximum prices for bar or cake toilet soaps.

Brand	Sise	Pack	per case before cash discount
Camay	Bath	100	\$8.924
Camay		50	4.492
Camay		144	8.633
Camay		72	4.365
Cashmere Bouquet		144	10.100
	Regular	100	3.880
	Regular	50	1.970
Fairy		72	3.250
		144	5.580
Honeysuckle		144	5.820
Ivory		72	2.959
Ivory		100	8.924
	Large		4.511
Ivory		50	5.335
Ivory		100	
Kirks Coco Hardwater Cast		100	3.929
Lava		100	8.003
Lava		50	4.074
Lava	Regular	100	5.287
Lava	Regular	50	2.668
Lifebuoy	Regular	100	6.000
Lifebuoy	Regular	50	3.025
	Bath	50	4.275
Lux		100	6.000
Lux		50	3.025
Octagon		144	5.820
Octagon	Regular	72	2.940
Palmolive		100	8,560
Palmolive		50	4.310
Palmolive		144	8.630
	Regular	72	4.370
	Regular	144	8.400
Sierra Pine		72	4.200
	Large	100	8.960
	Large	50	4.530
		100	5.350
Swan		100	5.820
Sweetheart			2.910
	Regular	50	
White King		100	4.320
	Regular	50	2.160
Woodbury	Regular	144	10.150
(b) Maximum prices for	bar laundry soaps.		
American Family	Large	80	\$3.977
	Large	80	3.250
Crystal White		100	3.490
Fels Naphtha		100	4.450
Kirkman Borax		100	4.250
Kirkinali Durax		100	7.200

Brand Size Pack of	
Octagon	4.120
Octagon	2.760
P & G White LaundryLarge 100A	4.074
P & G White Laundry Regular 100	3.735
P & G White LaundryLarge	3.250
P & G White LaundryRegular 100B	3.492
Tag	3.60
White KingLarge 80	3.250
White King Regular 100	3.490

(c) Maximum prices for cleansers and scouring powders.

D	Size		Carload price per case before
Brand	(ounces)	Pack	cash discount
Bab-O	14	48	\$4.387
Bab-O	14	24	2.194
Cameo Cleanser	14	48	2.780
Gold Dust	14	24	1.050
Kitchen Klenzer	13	40	2.000
Lighthouse		48	1.810
Octagon	13	48	1.790
Old Dutch		48	3.050
Sunbrite	5.0	48	2.016
Sunbrite	13	72	3.024

(d) Maximum prices for package soaps.

Brand	Size (ounces)	Pack	Carload price per case before cash discount
American Family Flakes		12	\$5.141
American Family Flakes		24	4.947
American Family Flakes		60	4.947
Chipso Flakes or Granulated		24	4.899
Chipso Flakes		60	4.899
Dash	67	12	5.626
Dash	331/2	24	5.626
Dreft	4	60	4.850
Dreft	83/4	24	4.850
Dreft	231/2	9	4.753
Duz	621/2	8	4.608
Duz	. 211/2	24	4.899
Duz	. 81/2	60	4.899
Ivory Flakes	40-1	24	4.850
Ivory Flakes		60	4.850
Ivory Snow		24	4.850
Ivory Snow	. 5	60	4.850
Ivory Snow	-	30	2.425
Kirkman Flakes	. 18	24	4.950
Kirkman Flakes	. 7	60	4.950
Kirkman Granulated	. 24	24	4.900
Kirkman Granulated with bar		24	5.200
	. 171/2	24	4.270
**** *	. 81/2	48	4.170
P 274 4	10-1	20	4.100
Lux Flakes		100	8.250
Lux Flakes		50	4.150
Lux Flakes	-	9	4.000
Magic Washer		60	4.700
Magic Washer		24	4.700
Magic Washer		8	4.650
Octagon Granulated		24	4.900
Octagon Flakes		24	4.900
Oxydol		8	4.608
Oxydol	. 24	24	4.899
Oxydol	. 9	60	4.899
Par Granulated	. 23	24	4.925
Par Granulated	. 50	12	5.225
Par Granulated	. 69	8	4.575
Peets Granulated	. 24	24	4.350
Peets Granulated	. 33	24	5.630
Peets Granulated	. 36	24	5.630
Peets Granulated	. 70	12	5.630
Rinso	. 69	8	4.600
Rinso		24	4.900
Rinso	0	60	4 900

(1)<sup>1</sup> The highest price (not exceeding the legal maximum) which the manufacturer charged for such commodity delivered by him to a purchaser of the same class during January 1943 or June 1944, or

Carload brice

(2) in If the manufacturer made no delivery of such commodity during January 1943 or June 1944, his highest offering price (not exceeding the legal maximum) for delivery during either month to a purchaser of the same class.

(3)<sup>2</sup> If the manufacturer did not deliver or offer to deliver such commodity to a purchaser of the same class, during January 1943 or June 1944, the maximum price shall be the manufacturer's maximum price as determined under section 13 or 15 of this regulation, whichever is applicable.

(g) How to compute your carload ceiling price on a new-size pack assembled in order to comply with War Production Board Limitation Order 317—Fibre Shipping Containers, dated March 23, 1944. By "new-size pack" is meant a pack containing a number of units different than the number in any pack for which a maximum price has been established in the table of maximum prices listed above, or in the case of unlisted soap products, for which a maximum price has been established prior to March 23, 1944.

(1) Find your present ceiling price on the old pack containing the same product in the same size bar or package by reference to the table in paragraphs (a), (b), (c), (d), or (e) above or, if your product is not listed in the foregoing table, by computation according to paragraph (f) above. All "new-size packs" must be priced with reference to a pack for which a maximum price was established in one of the paragraphs of the table of maximum prices listed above or, in the case of unlisted soap products, for which a maximum price had been established under paragraph (f) above, prior to March 23, 1944. You may not determine a maximum price for one "new-size pack" on the basis of the maximum price previously determined for another "new-size pack."

(2) If you had two or more sizes of old packs containing the same product in the same size bar or package, select the ceiling price of the old pack containing the number of units most nearly equal to the number of units in the new-size pack; if the number of units in the new pack is exactly midway between the number of units in two different old packs, select the ceiling price of the larger old pack.

<sup>&</sup>lt;sup>1</sup> Ep. Note—Amended by Amdt. 4 (effective 1-2-45); formerly read; "The highest price which the manufacturer charged for such commodity delivered by him during January 1943 or".

la Ep. Note—Amended by Amdt. 4 (effective 1-2-45); formerly read: "If the manufacturer made no delivery of such commodity during January 1943 his highest offering price for delivery during that month."

<sup>&</sup>lt;sup>8</sup> Ep. Note—Amended by Amdt. 4 (effective 1-2-45); formerly read: "If the manufacturer did not deliver or offer to deliver such commodity during January 1943, the maximum price shall be the manufacturer's maximum price as determined under the General Maximum Price Regulation."

Maximum prices for package soaps (contd.).

	Size		per case before
Brand	(ounces)	Pack	cash discount
Scotch Granulated	64	8	4.030
Scotch Granulated	48	12	4.550
Scotch Granulated	31	24	5.670
Scotch Granulated	22	24	4.410
Scotch Granulated		48	3.700
Selox	171/2	24	2.959
Selox	***	48	2.037
Silver Dust	211/2	24	5.190
Super Suds	69	8	4.610
Super Suds	611/2	8	4.610
Super Suds	24	24	4.900
Super Suds	211/2	24	4.900
Super Suds	9	60	4.900
Super Suds	81/4	60	4.900
Twenty Mule Team Borax Soap Su	ds 22	24	4.500
White King Granulated	62	8	4.700
White King Granulated	46	12	5.250
White King Granulated	28	24	6.290
White King Granulated		24	5.030
White King Granulated		48	4.260

(e) Maximum prices for washing powders.

	Size		per case before
Brand	(ounces)	Pack	cash discount
Gold Dust	36	12	\$1.750
Gold Dust	10	60	2.450
Gold Dust	61/2	100	2.600
Grandma	39	12	1.601
Grandma	834	100	2.474
Kirkman	40	12	1.850
Kirkman	12	50	2.100
Mermaid	44	24	3.940
Mermaid	10	48	2.160
Octagon	40	20	2.720
Octagon	13	60	2.330
Octagon	61/2	120	2.760
OK	141/2	60	2.280
OK		120	2.280
Star	83/4	100	2.474

- (f) The maximum price for any household soap or cleanser not listed in the table above, whether branded or unbranded, packaged, cut or bulk, shall be:
- (3) Divide the ceiling price of the old pack selected under (1) and (2) above, by the number of bars or packages contained in such old pack, carrying out your answer to the nearest thousandths of a cent.
- (4) Multiply this last figure by the number of bars or packages contained in the new pack and round to the nearest tenth of a cent. This figure is your ceiling price for the new pack.

Example: Product sold in old packs of 50 and 100: new-size pack will be 150. Price of 100 pack, \$8.075, and of the 50 pack, \$4.063.

Divide price of old pack containing the number of units nearest to 150 (the 100 unit pack); \$8.075, by number of units contained (100); \$.08075.

Multiply \$.08075 by 150 to get ceiling price for new-size pack: \$12.1125 rounded to nearest tenth of a cent of \$12.113.

The above method of computation is not required to be used as the only method of computation. Any method may be used so long as the result obtained as the maximum price per case for a given new-size pack is not greater than that which would be obtained by use of the above method. For example, manufacturers who have customarily used list prices higher than the maximum prices set forth in the table above and used discounts from those list prices to arrive at their selling prices may

continue to do so, adjusting their list prices accordingly, so long as the result thereby obtained does not lead to a higher maximum price per case of new-size pack than the maximum price would be obtained by the method described here.

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You must mark on the exterior of any changed-size pack the number of bars or packages it contains. In addition, when delivering a new-size pack for the first time to a wholesaler who resells to retail food stores, you must indicate on your invoices to such buyers which items are new-size packs by marking the letter "N" before such items on the invoice; at the same time you will state on your invoice.

"N" before an item indicates a newsize pack, whole resale ceiling price is to be computed in accordance with the enclosed instructions.

You will enclose with your invoice the following:

Instructions — How to compute your ceiling price on a new-size pack assembled in compliance with War Production Board Limitation Order No. 317—Fibre Shipping Containers, dated March 23, 1944, when selling to retail food stores. (1) Find your ceiling price on the old pack containing the same product in the same size bar or package.

- (2) If there are two or more sizes of old packs containing the same product in the same size bar or package, select the ceiling price of the old pack containing the number of units most nearly equal to the number of units in the new-size pack; if the number of units in the new-size pack is exactly midway between the number of units in two different old packs, select the ceiling price of the larger old pack.
- (3) Divide the ceiling price of the old pack selected under (1) and (2) above, by the number of units contained in such old pack, carrying out your answer to the nearest hundredth of a cent.
- (4) Multiply this last figure by the number of bars or packages contained in the new pack and round to the nearest cent. The answer is your ceiling price for the new pack.

Example: You sold product in old packs of 50 and 100. New-size pack will be 150. Your ceiling price of the 100 pack is \$8.33 t.o.b. warehouse sale, and \$8.51 service sale.

To obtain your ceiling price on an f.o.b. warehouse sale of the new-size pack, divide \$8.33 (the price of the old pack containing the number of units most nearly equal to the number of units in the new-size pack) by the number of units in the old pack (100): \$0.0833. Multiply \$0.0833 by the number of units in the new-size pack (150): \$12.495, rounded to \$12.50.

To obtain your ceiling price on a service sale of the new-size pack divide \$8.51 by 100 and multiply by 150 or \$12.765 rounded to \$12.77.

- (h) Less-than-carload quantities—(1) Packs other than new-size packs. When sales of the household soaps and cleansers listed in the table above are made in less-than-carload quantities, their respective maximum prices may be increased by a sum equal to the seller's differential for such less-than-carload quantity in effect in January 1943. (For example, if in January 1943 the seller's carload delivered price for X brand before cash discount was \$4.90 per case and his price for 100 cases, delivered, was \$5.00 per case, he may, upon a sale of 100 cases, add 10 cents per case to the price listed in the table above.)
- (2) New-size pack price in less-thancarload quantities. If you had established a maximum price or prices per case in less-than-carload quantities differing from the price per case in carload quantities in accordance with (1) above, such lessthan-carload price or prices per case in the new-size pack shall be determined similarly to the procedure described in paragraph (g) above for carload prices, that is, by dividing the maximum price or prices per case of the old pack in lessthan-carload quantities by the number of bars or packages it contains and multiplying the figure or figures thus obtained by the number of bars or packages contained in the new-size pack, rounding to the nearest full cent.

Where you had more than one lessthan-carload price depending upon the number of old packs sold at one time, the quantity brackets used to determine the price applicable to a sale of a given quantity shall be expressed in the total number of bars or packages involved rather than the total number of cases. Purchasers of such quantities of bars or packages shall pay the price per case applicable to such quantity brackets expressed in the number of bars or packages, regardless of the number of cases involved.

### - Example:

### OLD PACK PRICES—100 BARS TO CASE

L. C. L.:	\$5.00 per case
10 or more cases	5.10 per case
50 to 99 cases	5.20 per case
(5,000 bars to 10,000). Less than 50 cases	5.30 per case

### NEW-SIZE PACK PRICES—150 BARS TO CASE

(Up to 5,000 bars).

0	. L.								.\$7	.50	per	case
L	C.	L.	:									
	67	or	mo	re	case	s (	10	,00	00			

bars or more)	
34 to 66 cases (5,000 ba to 10,000)	7.80 per case
Less than 34 cases (up 5,000 bars)	

Thus, a purchaser of 40 new-size packs, having a total of 6,000 units, would be entitled to the price per case for sales of more than 5,000 units, or \$7.80.

(i) Each manufacturer shall continue to allow the cash and quantity discounts allowed by him during January 1943 which were most favorable to the buyer.

Redemption or premium plans offered by the manufacturer wherein the manufacturer offers to redeem a tag, wrapper, coupon or other evidence of a purchase of his product, for something of value, whether cash, commodity, "trading stamp" or similar right, or a service, shall be deemed a cash or quantity discount to the buyer within the meaning of this section whether the buyer purchases directly from the manufacturer or indirectly through a wholesaler, distributor, or retailer.

\$6 Maximum prices for sales of household soaps and cleansers by wholesalers to retail food stores. The maximum prices of household soaps and cleansers listed in the table below when sold to a retail food store by a wholesaler who has purchased such product in carload quantities shall be, for an f.o.b. warehouse sale, the price therefor listed in column A of the table and, for a service sale, the delivered price therefor listed in column B of the table. None of the maximum prices established in this section 6 may be increased by reason of the extension of credit to the buyer by the seller.

For instructions concerning the maximum price of the products listed in the table below when sold to a retail food store by a wholesaler who has purchased the product sold on a less than carload basis, for instructions concerning additions of surcharges for remote deliveries,

### (a) Maximum prices for bar or cake toilet soaps.

			Column A	Column B
			F.o.b.	Service
			warehouse	price
Brand	Size	Pack	price per case	per case
Camau	Deal	100	\$9.21	\$9.40
Camay		50	4.63	4.73
		144	8.91	9.10
Camay		72	4.50	
Camay	Regular	144	10.42	4.60 10.64
Crystal White		100	4.00	4.09
Crystal White		50	2.03	2.08
Fairy		72	3.35	3.42
Honeysuckle		144	5.76	5.88
Ivory		144	6.00	6.13
Ivory		72	3.05	3.12
			9.23	9.42
Ivory	Large	100 50	4.66	4.76
		-	5.51	5.63
Kirks Coco Hardwater Castile		100	4.05	4.14
		100	8.26	8.43
Lava		100	4.20	4.29
Lava	Large	50	5.45	5.57
Lava		100	0.0.00	2.81
		50	2.75	6.32
Lifebuoy	Regular	100	6.19	
Lifebuoy		50	3.12	3.19
Lux		50	4.41	4.50
Lux	** *	100	6.19	6.32
Cotomor	and Green	50	3.12	3.19
Octagon		144	6.00	6.13
Octagon		72	3.03	3.10
Palmolive		100	8.83	9.02
Palmolive		50	4.44	4.54
Palmolive		144	8.91	9.10
Palmolive		72	4.51	4.60
Sierra Pine		144	8.67	8.85
Sierra Pine	Regular	72	4.33	4.43
Swan		100	9.23	9.42
Swan	Large	50	4.66	4.76
Swan		100	5.51	5.63
Sweetheart		100	6.00	6.13
Sweetheart		50	3.00	3.07
White King		100	4.46	4.55
White King		50	2.23	2.28
Woodbury	Regular	144	10.47	10.70

### (b) Maximum prices for bar laundry soaps.

Brand	Size	Pack	F.o.b. warehouse price per case	Service price per case
American Family	Large	80	\$4.10	\$4.19
Crystal White	Large	80	3.35	3.42
Crystal White	Regular	100	3.60	3.68
Fels Naphtha		100	4.59	4.69
Kirkman Borax	Regular	100	4.38	4.48
Octagon	Large	100	4.25	4.34
Octagon	Small	120	2.85	2.91
P & G White Laundry	Large	100A	4.20	4.29
.P & G White Laundry		100	3.85	3.94
P & G White Laundry		80	3.35	3.43
P & G White Laundry		100B	3.60	3.68
Tag		72	3.71	3.79
White King		80	3.35	3.43
White King		100	3.60	3.68

### (c) Maximum prices for cleansers and scouring powders.

Bab-O	14	48	\$4.62	\$4.72
Bab-O	14	24	2.31	2.36
Cameo Cleanser	14	48	3.13	3.20
Gold Dust	14	24	1.11	1.13
Kitchen Klenzer	13	40	2.11	2.15
Lighthouse	14	48	1.91	1.95
Octagon	13	48	1.89	1.93
Old Dutch	14	48	3.21	3.29
Sunbrite	13	48	2.12	2.17
Sunhrite	1.3	72	3.19	3.26

(d) Maximum prices for package so	aps.		Column A F.o.b. warehouse	Column B Service price
Brand	Size	Pack	price per case	per case
American Family Flakes	43 21 8	12 24 60	\$5.30 5.10 5.10	\$5.42 5.21 5.21
Chipso Flakes or Granulated	21½ 8½	24 60	5.05 5.05	5.16 5.16
Dash Dash Dreft Dreft Dreft Duz Duz Duz	67 33½ 4 8¾ 23½ 62½ 21½ 8½	12 24 60 24 9 8 24 60	5.80 5.80 5.00 5.00 4.90 4.75 5.05 5.05	5.93 5.93 5.11 5.11 5.01 4.86 5.16
Ivory Flakes Ivory Flakes Ivory Snow Ivory Snow Ivory Snow	12½ 5 12½ 5	24 60 24 60 30	5.00 5.00 5.00 5.00 2.50	5.11 5.11 5.11 5.11 2.56
Kirkman Flakes Kirkman Flakes Kirkman Granulated Kirkman Granulated with bar. Klek Klek	18 7 24 21½ 17½ 8½	24 60 24 24 24 24 48	5.11 5.11 5.05 5.36 4.40 4.30	5.22 5.22 5.16 5.48 4.50 4.39
Lux Flakes Lux Flakes Lux Flakes Lux Flakes Lux Flakes	12½ 5 5 28	20 100 50 9	4,23 8.51 4.28 4.13	4.32 8.69 4.37 4.22
Magic Washer	8 25 80	60 24 8	4.85 4.85 4.80	4.95 4.95 4.90
Octagon Granulated Octagon Flakes Oxydol Oxydol Oxydol	24 18 69 24 9	24 24 8 24 60	5.05 5.05 4.75 5.05 5.05	5.16 5.16 4.86 5.16 5.16
Par Granulated Par Granulated Par Granulated Peets Granulated Peets Granulated Peets Granulated Peets Granulated Peets Granulated	23 50 69 24 33 36 70	24 12 8 24 24 24 12	5.08 5.30 4.72 4.49 5.81 5.81	5.19 5.51 4.82 4.58 5.93 5.93 5.93
Rinso	69 24 9	8 24 60	4.75 5.05 5.05	4.86 5.16 5.16
Scotch Granulated Sclox Selox Selox Super Suds	64 48 31 22 8 17½ 6½ 21½ 69 21½ 24 21½ 9 8¾	8 12 24 24 48 24 48 24 48 24 24 60 60	4.16 4.69 5.85 4.55 3.82 3.05 2.10 5.35 4.76 4.76 5.05 5.05 5.05	4.25 4.79 5.97 4.65 3.90 3.12 2.15 5.47 4.86 4.86 5.16 5.16 5.16
Twenty Mule Team Borax Soap Suds	22	24	4.64	4.74
White King Granulated	62 46 28 22 9	8 12 24 24 48	4.85 5.42 6.50 5.19 4.39	4.95 5.53 6.63 5.30 4.49

for instructions on the method of establishing maximum prices for sales of household soaps and cleansers not listed in the table below, and for the method of establishing maximum prices for sales of household soaps and cleansers in new-size packs, see paragraphs (f); (g), (h) and (j) at the end of this table.

(f) Instructions. (1)1 The maximum selling price of the products listed in the table above, when sold to a retail food store by a wholesaler who purchased the product sold on a less than carload basis, may be increased by a sum equal to the difference between the manufacturer's carload maximum price per case and the manufacturer's actual selling price per case for the quantity purchased. (For example, if the manufacturer lists a price of \$5.00 per case before cash discount for delivered carload quantities of X brand soap and the wholesaler actually buys only 100 cases for which he pays \$5.15 per case delivered before cash discount, he may add 15 cents per case on this hundred-case quantity to the maximum price established for X brand soap in the table above.)

(2)2 When a wholesaler purchases any of the products listed in the table above on a pool-car basis and incurs an additional expense of transportation from the pickup point to his usual receiving point, such wholesaler, on sales to retail food stores, may increase the maximum selling price of the product by a sum equal to the additional transportation expense, not to exceed the difference between the manufacturer's maximum carload price and the manufacturer's maximum less-than-carload price for the quantity purchased. (For example, if the pool-car cost per case to the wholesaler is \$5.00 and it costs him 10 cents per case to have it brought from the unloading point to his usual receiving point, he may add 10 cents per case to the maximum selling price as listed above, provided the manufacturer's delivered price for such l.c.l. quantity is not less than \$5.10 per case.)

(g) Instructions. A wholesaler making a delivery in a remote area or zone for which he customarily added a surcharge for delivery in March 1942 may continue to add an amount equal to such customary surcharge to the maximum prices established in column B of the table above. (For example, if the wholesaler customarily made a special charge of 5 cents a case for delivering any soap product listed in the table above to any retail food store located more than 25 miles outside the city limits, he may add 5 cents per case to the maximum prices established in column B of the table above for his deliveries of such soap product to any retail food store more than 25 miles outside the city limits.)

(h) Instructions. Upon a sale of either a listed or unlisted household soap or cleanser by a branch unit of any manufacturer which performs a wholesaler func-

<sup>&</sup>lt;sup>1</sup> Ep. Note—Designation "(1)" inserted by Amdt. 4 (effective 1-2-45).

<sup>&</sup>lt;sup>2</sup> Ep. Nore—Added by Amdt. 4 (effective 1-2-45).

			warehouse	price
Brand	Sise	Pack	price per case	per case
Gold Dust	36	12	\$1.84	\$1.89
Gold Dust	10	60	2.58	2.64
Gold Dust	61/2	100	2.74	2.80
Grandma	39	12	1.69	1.72
Grandma	83/4	100	2.61	2.66
Kirkman	40	12	1.95	1.99
Kirkman	12	50	2.21	2.26
Mermaid	44	24	4.15	4.24
Mermaid	10	48	2.28	2.33
Octagon	40	20	2.87	2.93
Octagon	13	60	2.46	2.51
Octagon	61/3	120	2.91	2.97
OK	143/2	60	2.40	2.46
OK	73/4	120	2.40	2.46
Star	83/4	100	2.61	2.66

tion the invoice price (not in excess of the manufacturer's maximum price) to the branch unit shall be deemed to be the actual cost of the household soap or cleanser.

- (i) Instructions. (1), Unless a specific maximum price or pricing method has been established by the Administrator under section 14 of this regulation, the maximum prices for a sale of an unbranded or bulk household soap or cleanser shall be
- (i) Upon an f.o.b. warehouse sale of bar toilet soap, bar laundry soap or package soap, the actual cost to the seller before cash discount multiplied by 1.04.
- (ii) Upon an f.o.b, warehouse sale of a cleanser, scouring powder or washing powder, the actual cost to the seller before cash discount multiplied by 1.06.
- (iii) Upon a service sale of bar toilet soap, bar laundry soap, or package soap, the actual cost to the seller before cash discount, multiplied by 1.06, plus, in the case of a delivery to a remote area for which a delivery surcharge was customarily added in March 1942, an amount equal to such customary surcharge.
- (iv) Upon a service sale of a cleanser, scouring powder or washing powder, the actual cost to the seller before cash discount multiplied by 1.08, plus, in the case of a delivery to a remote area for which a delivery surcharge was customarily added in March 1942, an amount equal to such customary surcharge.
- (2) Unless a specific maximum price or pricing method has been established by the Administrator under section 14 of this regulation, \*\* the maximum price for a brand of household soap or cleanser (other than a bulk soap or cleanser) not listed in the table above shall be at the seller's option either:
- (i) The seller's maximum price as determined under the General Maximum Price Regulation, or
- (ii) The seller's actual cost multiplied by the appropriate mark-up factor in subparagraph (1) above.
- <sup>8</sup> ED. NOTE—Preceding part of sentence inserted by Amdt. 4 (effective 1-2-45).

Option (i) above shall be inapplicable to household soaps or cleansers not sold at any time between March 1, 1942 and December 28, 1944.

Column A

F.L

Column B

Camina

- (j) Instructions—How to compute your ceiling price on a new-size pack assembled in compliance with War Production Board Limitation Order No. 317—Fibre Shipping Containers, dated March 23, 1944.

  By "new-size pack" is meant a pack containing a number of units differing from any pack for which a maximum price had been established in one of the tables of maximum prices listed above or in the case of unlisted soap products, for which a maximum price had been established prior to March 23, 1944.
- (1) Find your present ceiling price on the old pack containing the same product in the same size bar or package by reference to paragraphs (a), (b), (c), (d), or (e) of the table above if the product is listed therein, or by computation according to paragraph (i) above if the product is not listed in the foregoing table. All "new-size packs" must be priced with reference to a pack for which a maximum price was established in one of the paragraphs of the table of maximum prices listed above or, in the case of an unlisted soap product, for which a maximum price had been established under paragraph (i) above prior to March 2, 1944. You may not determine a maximum price for one "new-size pack" on the basis of the maximum price previously determined for another "new-size pack."
- (2) If you had two or more sizes of old packs containing the same product in the same size bar or package, select the ceiling price of the old pack containing the number of units most nearly equal to the number of units in the new-size pack; if the number of units in the new pack is exactly midway between the number of units in two different old packs, select the ceiling price of the larger old packs.
- (3) Make any necessary adjustments to this price under paragraphs (f) and (g) above, if applicable.
- <sup>1</sup> ED. Note—Preceding sentence added by Amdt. 4 (effective 1-2-45).

- (4) Divide the ceiling price obtained by (1) and (3), or (2) and (3) above, by the number of bars or packages contained in the old pack selected under (1) and (2) above and carry out the answer to the nearest hundredth of a cent.
- (5) Multiply this last figure by the number of bars or packages contained in the new pack and round the answer to the nearest cent. This figure will be your ceiling price for the new-size pack.

Example: You sold product in old packs of 50 and 100; new size packs will be 150. Your ceiling prices for the old pack containing the number of units nearest to 150 (the 100 unit pack) was \$8.33 f. o. b. warehouse and \$8.51 service. To obtain your f. o. b. warehouse price divide the price of the largest size pack (\$8.33) by the number of units contained (100): \$0.0833. My umber of units contained in new pack (150): \$12.495, rounded to \$12.50.

To obtain your ceiling price for a service sale, divide price of the 100 unit pack (\$8.51) by 100: \$0.0851. Multiply \$0.0851 by 150: \$12.765, rounded to \$12.77.

### ARTICLE III-MISCELLANEOUS

- § 7 Petitions for amendment. Any person seeking any modifications of this regulation may file a petition for amendment in accordance with the provisions of Revised Procedural Regulation No. 1.
- 8.8 Records and reports. Every manufacturer or wholesaler of household soaps and cleansers subject to this regulation shall after May 24, 1943, keep for inspection by the Office of Price Administration for so long as the Emergency Price Control Act of 1942, as amended, remains in effect, complete and accurate records of each purchase or sale, showing the date thereof, the name and address of the buyer and the seller, and the price contracted for or paid. In addition every manufacturer or wholesaler of household soaps and cleansers subject to this regulation shall keep for inspection by the Office of Price Administration for so long as the Emergency Price Control Act of 1942, as amended, remains in effect, the records showing how the maximum prices for bulk, unbranded, or unlisted soaps or cleansers were computed.
- §8a Billing and marking requirements. Any manufacturer or wholesaler selling either bulk or unbranded household soaps or cleansers must indicate clearly on an invoice or notice furnished the buyer prior to payment by him whether the product is a bar toilet soap, bar laundry soap, cleanser or scouring powder, package soap, or washing powder, as defined in section 11 below. In addition, any wholesaler who packages soap and cleanser from bulk shall indicate thereon, "This is a bar toilet soap (or bar laundry soap, scouring powder or cleanser, package soap or washing powder) packaged from bulk." This section, however, shall not be applicable to sales of household soaps and cleansers to the United States or any agency thereof.
- § 9 Enforcement. Persons violating any provision of this regulation are subject to the criminal penalties, civil enforcement actions, license suspension proceedings, and suits for treble damages provided for by the Emergency Price Control Act of 1942, as amended.

- § 9a Licensing. The provisions of Licensing Order No. 1, licensing all persons who make sales under price control, are applicable to all sellers subject to this regulation or schedule. A seller's license may be suspended for violations of the license or of one or more applicable price schedules or regulations. A person whose license is suspended may not, during the period of suspension, make any sale for which his license has been suspended.
- § 10 Federal and state taxes. (a) There may be added to the maximum prices established by this regulation the amount of any tax upon the sale or delivery of household soaps and cleansers imposed by a statute of the United States or statute or ordinance of a state or subdivision thereof if, and only if:
- (1) The statute or ordinance requires or permits the seller to state the tax separately from the purchase price, and
- (2) The tax is separately stated and collected by the seller.
- § 11 Definitions. (a) As used in this regulation, the term:

"Anhydrous soap content" means the anhydrous soap content as determined by the official methods for testing soap set out in Federal Specification P-S-536A for Soap and Soap Products; General Specifications for Sampling and Testing. This document can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

"Bulk soap or cleanser" means any soap, soap product, soapless detergent or cleanser bought or sold by a manufacturer or wholesaler, in barrels, large sacks or bags or other sizable quantities, said commodity not having been cut into a bar or cake of a size or type customarily sold to household consumers or packaged in a container of a size or type customarily sold to household consumers.

"Carload quantity" means any quantity of household soaps or cleansers upon which the manufacturer thereof allowed a carload quantity discount in March 1942.

"Criminal penalties" means a fine of not more than \$5,000 or imprisonment for not more than one year or both.

"Differ in weight" a means a difference in marked weight in the case of packaged soaps or cleansers which have a marked weight or in packaged weight in the case of packaged soaps or cleansers which have no marked weight or in cut weight in the case of bar soaps or cleansers.

- "Marked weight" means the net weight of the contents thereof as marked on a package of soap or cleanser which is not in bar form.
- (2) "Packed weight" means the net weight of the contents of a package of soap or cleanser not in bar form immediately after packaging.
- (3) "Cut weight" means the weight of a bar of soap or cleanser immediately after being cut, formed or stamped into

"Differ in quality" 1 means:

- (1) A difference in serviceability per unit weight in the use for which the soap or cleanser is customarily intended, or
- (2) A difference in the percentage of anhydrous soap contained.

"Improve in quality" means:

- (1) An increase in the percentage of anhydrous soap contained, or
- (2) An increase in the serviceability per unit weight in the use for which the soap or cleanser is customarily intended.

"Market area" means the geographical area in which a manufacturer has delivered or offered for current delivery a particular household soap or cleanser during the thirty-day period ending July 17, 1942.

"Purchaser of the same class" refers to the practice adopted by the seller in setting different prices for commodities for sales to different purchasers or kinds of purchasers (for example, wholesalers, retailers, institutions, government agencies, individual consumers) or for purchasers located in different areas or for different quantities or grades or under different conditions of sale.

"Discount" means any reduction of list price allowed by a seller to a buyer upon a quantity or cash purchase.

"F. O. B. warehouse sale" means a sale

made f.o.b. the seller's premises.

"Household soap and cleansers" means:

- (1) Any listed commodity, that is, any commodity for which a dollars and cents maximum price is established by this regulation, or
- (2) Any branded or unbranded, cut, packaged, or bulk, soap, soap product, soapless detergent or cleanser similar in type and function to a listed commodity and classified in one of the following categories:
- (i) "Bar toilet soap," meaning any bar or cake soap sold for toilet use.
- (ii) "Bar laundry soap," meaning any bar soap sold for laundry use, including but not limited to white or yellow bar laundry soap.
- (iii) "Cleanser and scouring powder," meaning any soap product containing powdered abrasive material with or without alkali builders.
- (iv) "Package soap," meaning any fine fabric or general laundry soap in the form of chips, flakes, granules, powder or similar forms with base anhydrous soap content of 50 per cent or more, or any soapless detergents which have the same use and purpose as such soaps.
- (v) "Washing powders," meaning any soap powders with base anhydrous soap content of less than 50 per cent.

"Manufacturer" means a person who:

- (1) Produces a household soap or cleanser;
- (2) Puts a household soap or cleanser into packages or cuts or stamps same into
- <sup>1</sup> Ed. Nore-Added by Amdt. 4 (effective 1-2-45).

bars or cakes and sells said packages, bars or cakes under his own or another's brand name: or

- (3) Owns the brand name of a house-hold soap or cleanser; or
- (4) Uses soap, soap products, soapless detergents or cleansers made by others as a raw material, and by the addition of other materials makes a finished product which is sold for detergent uses.

"Offering price" means that price at which the seller would have been willing to sell the product upon a bona fide offer to purchase.

"Person" means an individual, corporation, partnership, association, or any other organized group of persons, or legal successor or representative of any of the foregoing, and includes the United States or any agency thereof, or any other government, or any of its political subdivisions or any agency of any of the foregoing.

"Retail food store" means a store in which 50 per cent or more of the gross dollar sales volume is from the sale of food products or the food department of any store.

"Service sale" means a sale in which the seller delivers the goods to a point other than his own premises.

"Suits for treble damages" means if any person selling household soaps and cleansers violates this violation, the person who buys such commodity for use or consumption other than in the course of trade or business may bring an action either for \$50 or for treble the amount by which the consideration exceeded the applicable maximum price, whichever is the greater, plus reasonable attorney's fees and costs as determined by the court. If any person selling such commodity violates this regulation and the buyer is not entitled to bring suit or action, the Administrator may bring such action on behalf of the United States.

"Surcharge for delivery" means a charge made for a delivery in a remote area which is over and above the seller's usual delivery charge in a less remote area.

"Wholesaler" means a person other than the owner of a brand name who purchases a household soap or cleanser and resells it without substantially changing its form to a retail food store. "Wholesaler" includes a person who puts a household soap or cleanser, not produced by him, into packages, or cuts or stamps same into bars or cakes, and sells said packages, bars, or cakes unbranded. A branch unit of any manufacturer which performs a wholesaler function is deemed a wholesaler.

### ARTICLE IV 1—New or Changed Products

§ 12 What this article prohibits. Except as provided below, no manufacturer of a household soap or cleanser, regardless of the terms of any contract, lease or other obligation, may sell, offer to sell, or deliver to any person a new or changed household soap or cleanser. A new or changed household soap or cleanser is:

- (a) A household soap or cleanser which differs in weight or quality from any household soap or cleanser delivered or offered for current delivery by such manufacturer in the market area where such person is located during the thirty day period ending July 17, 1942, or
- (b) A household soap or cleanser not delivered or offered for current delivery by such manufacturer in the market area where such person is located during the thirty-day period ending July 17, 1942, or
- (c) A household soap or cleanser which differs in weight or quality from one having the same brand name which was delivered or offered for current delivery by such manufacturer in the market area where such person is located during the thirty-day period ending July 17, 1942.
- § 13 Applications for permission to sell a new or changed product. (a) Any manufacturer seeking to sell, offer to sell or deliver a household soap or cleanser whose sale and delivery is prohibited by section 12 above, shall prior to any such sale, offer to sell, or deliver, file an application with the Office of Price Administration, Washingtotn, D. C., for approval of a proposed maximum price for the commodity. This application shall contain all facts regarding the commodity to be priced which are required by the form set forth in section 16 (that form may be used if desired).
- (b) A commodity for which the approval of a maximum price is required under this section 13 may not be sold or offered for sale or delivered until a price has been approved by the Office of Price Administration.
- § 14 Action by the Administrator. (a) If the Administrator finds that the sale of the new or changed household soap or cleanser by the manufacturer as well as by any reseller thereof would not 4ead to manipulative practices which would defeat or impair the purposes of the Emergency Price Control Act of 1942, as amended, nor lead to evasions of applicable price regulations, he may authorize the sale, offer to sell, and delivery of such new or changed household soap or cleanser and will, either in connection therewith or otherwise, establish maximum prices which are in line with the level of maximum prices otherwise established by this regu-
- (b) The Administration may, at any time, approve, disapprove, or revise maximum prices proposed or established under this section so as to bring them into line with the level of maximum prices otherwise established by this regulation, and may, by order, establish maximum prices or pricing methods for the resale of any new or changed household soap or cleanser.
- (c) Manufacturers of new or changed products to whom permission to sell or deliver such products has been given by

- the Administrator pursuant to the provisions of this section, may at any time be required to submit reports, records, and accounts to the National Office of the Office of Price Administration, Washington, D. C., subject to the approval of the Budget Bureau in accordance with the Federal Reports Act of 1942.
- § 15 Applicability of this article. (a) Section 12 of this regulation shall not be applicable to sales of a new or changed household soap or cleanser where:
- (1) The buyer is an agency of the United States, or
- (2) The sale is of bulk soap or bulk cleanser, or
- (3) The sale is of a completely soapless detergent, or
- (4) The sale is of a cleanser or washing powder having an anhydrous soap content of 20 per cent or less, and the cleanser or washing powder had been delivered or offered for current delivery in any market area in the United States during the thirty-day period ending July
- (5) The sale involves a household soap or cleanser as to which an exception has been granted under Commodity Practices Regulation No. 1.
- (b) The manufacturer's maximum price for a new or changed household soap or cleanser included in paragraph (a) of this section shall be the maximum price as determined under the General Maximum Price Regulation, or the price, if any, established in connection with an exception under Commodity Practices Regulation No. 1.
- (c) Section 12 of this regulation shall not be applicable to sales of a changed household soap or cleanser where the changed product is improved in quality or increased in weight over the product delivered or offered for current delivery during the thirty-day period ending July 17, 1942, provided no increase in the maximum price of the commodity is proposed.

§ 16 Form of application.

OPA Form No. 6922132 Budget Bureau No. 08-R1217 Budget Bureau No. 08-R1217

Application for Maximum Price of new or changed household soap or cleanser.
Under provisions of section 13 of MPR 391
Name of Company.
Address—Street

City—State
Submitted by
Title
Date of application
Instructions: If your product was sold during the base period in a certain market area, and you now propose to market it in a new area, complete Part A of this form.
If your proposed product was not sold in any market area during the base period, or differs in weight or quantity from one sold by you in any market area during the same base period, complete Parts A and B of this form.

By the base period is meant the 30-day period ending July 17, 1942.
By classification is meant one of the following:
(1) Bar or cake toilet soaps.
(2) Bar laundry soaps.
(3) Package soaps.
(4) Washing powders.
(5) Cleansers and scouring powders.

Part A:
1. Brand name of product

- Size, weight and classification of product (including anhydrous soap content)
- Market area of sales in base period (if you sold the same product then) and maximum price
- 4. Classes of buyers of resellers of product
- 5. Proposed market area of sales
- 6. Name, sizes, weight and prices (including anhydrous soap content) of all other soap products of the same classification as the product you propose to market which you now offer for sale in the proposed market area.

Part B:

1. Raw material cost of new product.

Name of material (list)	Grade	Cur- rent cost per pound	Quantity used per case of units	per case of units cost
*********	*****			
	*****			*****
*********	*****	*****	*****	*****
*********	*****	*****	*****	
	*****	*****		*****
*********	*****	*****	*****	
2. Packing	material	cost per	case	
3. Direct la	hor cost	ner case	*******	*****

- 4. Other factory expenses (includes only such items as power, depreiation, rent, plant maintenance and repair, etc. State on what basis you have computed these overhead costs. Do not include selling and administrative expense)
- 5. Total factory cost (Iems 1, 2, 3, 4)
- 6. Estimated production per month (number of cases) .....
- 7. Proposed maximum manufacturing price (before cash discount) Carload L. C. L.

Effective date. This Regulation No. 391 shall become effective on May 24, 1943. Note: The record keeping and reporting provisions of this regulation have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

### Table of Amendments

Amdt. No.	Date Issued	Date Effective	Fed. Reg. Citation	Sections Affected		
1	10- 2-43	10- 8-43	8 FR 13500	3(a)(1), 5(4), (i), 11(a)	5(g)(3), 6(4),	(f), (h),
2	4-25-44	5- 5-44	9 FR 4441	3(g), 5(a), (c),	(d), (h), 6(a)	, (c), (d)
3	6-24-44	6-24-44	9 FR 7070	3(a), (b) (1), (a) (h), (i), 6, (i)	2), 4(a) (1), 5, i), (j), 2, 8a, 1	

ED. NOTE—The amendments referred to above have been incorporated in the text of the regulation as reprinted above, but without footnotes. For footnotes indicating the effect of such amendments on the text of the regulation, see OPA Service, ¶ 32bbb. The effect of subsequent amendments will be indicated in footnotes in the text of the regulation.

3(b) (1), 4(a) (3), 5(f) (1), (2), (3), 6 (f) (1), (2), 6(i) (1), (2), 11(a), Article IV 12-28-44 1- 4-45 9 FR 15148

> PRENTISS M. BROWN Administrator

ED. NOTE-Added by Amilt. 4 (effective 1-2-45)

# Specifications\*

### Chip Soap (P-S-566a)

Chip soap shall be a soap in chip form made from soda and fats or fatty acids, without rosin, as free as possible from water and all substances other than true soap, of a light uniform color, free from disagreeable odor, and suitable for laundering and other washing, cleaning and scouring processes with soft water, when the presence of alkaline salts is not desirable.

Moisture and matter volatile at 105° C. shall not exceed 10 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 4 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.2 per cent. Matter insoluble in water shall not exceed 1.0 per cent. Anhydrous soap shall be not less than 85 per cent. Titer of the mixed fatty acids prepared from the soap must be not less than 39° C. No rosin shall be present. Total glycerol content (per cent of anhydrous soap) maximum 0.8.

### Cake Grit Soap (P-S-571a)

Cake grit soap shall be of the following types as specified: Type A—for fine work, such as glass and enamel; Type B—for scouring and scrubbing.

Type A-

Moisture and matter volatile at 105° ±2° C. shall not exceed 4 per cent. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na<sub>2</sub>CO<sub>3</sub>), shall not exceed 1 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 88 per cent nor more than 93 per cent. The insoluble siliceous material shall consist of not less

than 90 per cent of ground feldspar. All of the insoluble siliceous material shall pass through a No. 100 sieve, and the residue retained on a No. 200 sieve shall not exceed 5 per cent. Sugar, and foreign matter shall not be present. Anhydrous soda soap shall be within 1 per cent of the difference between 100 and the sum of the matter volatile at 105° ±2° C., insoluble siliceous material, and alkali as alkaline salts. The cakes shall be well compressed and of a satisfactory degree of friability, which shall not be materially affected or lessened after immersion in or contact with water. The material shall not scratch glass or enameled surfaces. The material shall be unscented and shall be of a light gray or white color. Total glycerol content shall not exceed 1 per cent of the weight of anhydrous soap contained in this product.

Type B-

Moisture and matter volatile at 105° ±2° C. shall not exceed 5 per cent. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na<sub>2</sub>CO<sub>5</sub>), shall not ex-

tions on glycerine use.

ceed 3 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall not be less than 75 nor more than 85 per cent. The insoluble siliceous material shall be mainly quartz, and it all must pass through a No. 100 sieve. Sugar, and foreign matter shall not be present. Anhydrous soda soap shall be within 1 per cent of the difference between 100 and the sum of the matter volatile at 105° ±2° C., insoluble siliceous material, and alkali as alkaline salts. The cakes shall be well compressed and of a satisfactory degree of friability, which shall not be materially affected or lessened after immersion in or contact with water. The material shall be unscented and shall be of a light gray or white color. Total glycerol content shall not exceed 1 per cent of the weight of anhydrous soap contained in this product.

### Hand Grit Soap (P-S-576)

Hand-grit soap shall be a cake soap containing about one-third its weight of clean, finely divided insoluble siliceous matter, as free as

as to packaging, methods of analysis, etc., are available through the U. S. Federal Specifications Board. The specifications listed are the latest versions as of the date of compilation of this edition of the Blue Book. Readers are cautioned, however, that further changes are being made periodically, and that the latest amended versions of all specifications should be consulted in filling government orders. In particular, many of these specifications will shortly be revised to eliminate provisions covering maximum glycerine content. A number of specifications carry close glycerine controls which are no longer necessary because of the lifting of WFA restric-

ONLY the essential requirements of these government

Copies of the complete specifications, including details

specifications have been extracted in our summary.

<sup>\*</sup> General and detailed requirements as specified in the Standard Stock Catalogue of the U. S. Federal Specifications Board.

from water, uncolored, unDetail Requirements for Laundry Chip Soap

possible from water, uncolored, unscented unless otherwise specified, thoroughly saponified, and well compressed in firm, smooth cakes.

Matter volatile at 105° C. shall not exceed 32 per cent. Deliveries which yield more than 32 per cent of volatile matter will be rejected without further test. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na<sub>2</sub>CO<sub>3</sub>), shall not exceed 1 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 25 nor more than 40 per cent. The insoluble siliceous material shall not yield more than 2 per cent of residue retained on a No. 100 sieve and not more than 10 per cent of residue retained on a No. 200 sieve. Sugar, and foreign matter shall not be present. Rosin shall not exceed 5 per cent. Total glycerol content shall not exceed 0.8 per cent of the weight of anhydrous soap contained in this product. The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received, but all other constituents, except glycerol which will be calculated on the anhydrous soap basis, will be calculated to the basis of material containing 30 per cent of matter volatile at 105° C.

### Laundry Chip Soap (Rosin Type) (P-S-581)

Laundry chip soap shall be a well-made, uniformly mixed soap in chip form, made from soda and fats or fatty acids, with no excessive proportion of rosin and a moderate amount of matter insoluble in alcohol, shall be of a uniform color, and shall be suitable for use with modcrately hard water for general cleaning and laundry purposes. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the

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	Maximum Per Cent	Minimum Per Cent
Moisture and matter volatile at 105° C		****
and sodium chloride	12.0	
Free acid, calculated as oleic acid		****
Chloride, calculated as sodium chloride (NaCl)	1.0	
Anhydrous soap Total glycerol content (per cent of anhydrous soap)		72.0

material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller.

The material shall conform to the detail requirements listed in the table above.

# Granulated Laundry Soap (Rosin Type) (P-S-583)

Laundry granulated soap shall be a well-made, uniformly mixed soap in granulated or powdered form, made from soda and fats or fatty acids, with no excessive proportion of rosin and a moderate amount of matter insoluble in alcohol, shall be of a uniform color, and shall be suitable for use with moderately hard water for general cleaning and laundry purposes. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller. Detail requirements listed in table below.

### Liquid Laundry Soap (P-S-586)

Liquid soap for laundry use shall be a clear solution of pure potash (or potash and soda) soap with or without glycerol or alcohol and containing not less than 12 per cent by weight of a volatile organic solvent or a mixture of such solvents. It shall yield a clear solution on mixing with soft water, shall quickly form a satisfactory lather, shall have no injurious effect and leave no objectionable odor on fabrics. Materials washed with this soap shall have, after drying, a soft feel and not appear more boardy or stiff than when washed with soft water.

The material shall be a clear solution, shall yield a clear, homogeneous solution on mixing with soft water, shall quickly form a satisfactory lather, and shall leave no objectionable odor on fabric. Total anhydrous soap shall be not less than the equivalent of 24 per cent potash soap. Total matter insoluble in alcohol shall not exceed 0.5 per cent. Free alkali, calculated as potassium hydroxide (KOH), shall not exceed 0.05 per cent. Chloride, calculated as potassium chloride (KCl) shall not exceed 0.3 per cent. Total matter insoluble in water shall

Detail Requirements for Granulated Laundry Soap

	Maximum Per Cent	Minimum Per Cent
Moisture and matter volatile at 105° C		****
and sodium chloride	14.0	
Free alkali, calculated as sodium hydroxide (NaOH)		
Free acid, calculated as oleic acid		
Matter insoluble in water		
Chloride, calculated as sodium chloride (NaCl)		
Rosin		****
Anhydrous soap		75.0
Residue retained on a No. 12 sieve		****
Total glycerine content (per cent of anhydrous soap)	0.8	

not exceed 0.1 per cent. Volatile organic solvent shall be not less than 12 per cent. All constituents shall be calculated on the basis of the original sample. Fabric washed with the liquid soap shall show no more shrinkage or felting than occurs with similar fabric washed with soft water at the same temperature. Colored materials when washed with this soap shall not fade more than when washed the same number of times at the same temperature with soft water alone.

### Ordinary Bar Laundry Soap (P-S-591a)

Ordinary laundry bar soap shall be a well-made, uniformly mixed laundry or common soap, made from soda and fats or fatty acids, with no excessive proportion of rosin and a moderate amount of matter insoluble in alcohol, and shall be suitable for use with moderately hard water for general cleaning and laundry purposes.

Odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The materials shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, closed container for comparison with samples from deliveries.

Moisture and matter volatile at 105° C. shall not exceed 36 per cent. The sum of free alkali or free acid, total matter insoluble in alcohol and sodium chloride, shall be not less than 2 per cent nor more than 11 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.5 per cent. Free acid, calculated as oleic acid, shall not exceed 0.5 per cent. Matter insoluble in water shall not exceed 1 per cent. Chloride calculated as sodium chloride (NaCl), shall not exceed 1.0 per

cent. Rosin shall not exceed 25 per cent. Anhydrous soap shall be not less than 52 per cent. Total glycerol content (per cent of anhydrous soap), maximum 0.8. The percentage of moisture and volatile matter will be computed on the basis of the soap as received, but all other constituents except glycerol which shall be calculated and reported on the basis of the anhydrous soap content, will be calculated on the basis of an assumed moistured and volatile matter content of 36 per cent.

### Powdered Laundry Soap (P-S-596a)

Powdered soap shall be a soap in powdered form made from soda and fats or fatty acids, without rosin, as free as possible from water and all substances other than true soap, of a light uniform color, free from disagreeable odor, and suitable for laundering and other washing, cleaning and scouring processes with soft water, when the presence of alkaline salts is not desirable.

Moisture and matter volatile at 105° C. shall not exceed 6 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 4 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.2 per cent. Matter insoluble in water shall not exceed 1.0 per cent. Anhydrous soap shall be not less than 89 per cent. Titer of the mixed fatty acids prepared from the soap shall be not less than 39° C. Residue retained on a No. 12 sieve shall not exceed 1.5 per cent.

Rosin, none. Total glycerol content (per cent of anhydrous soap), maximum 0.8. The percentage of moisure and volatile matter will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 6 per cent of volatile matter, except glycerol which shall be calculated and reported on the basis of the anhydrous soap content.

# Liquid and Paste Soap for Automobile, Floor and General Cleaning (P-S-598)

Soap covered by this specification shall be of one type only, made solely from vegetable base stock and potash. The material shall be a uniform translucent, firm gel or paste of a yellowish-white to brownishyellow color. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with a water solution of the soap and rinsing throughly with plain water. Moisture (by distillation method, using toluol instead of xylol) shall not exceed 60 per cent. Deliveries which yield more pared shall yield a good suds. A solution of the soap in soft water than 60 per cent of moisture shall be rejected without further test. The soap shall dissolve readily to give a 0.15- to 0.2-per cent solution, using distilled water at 15.5 to 20° C. (60° to 68° F.). The solution so preshall act as a cleaner and shall not damage surfaces on which it is used. When specified, each bidder shall

Detail Requirements for Auto Soap (P-S-598)

	Minimum	Maximum
Moisture (toluene distillation method)per cen	t	60
Total matter insoluble in alcoholper cen		1.0
Free alkali, calculated as potassium hydroxide (KOH)per cen		.1
Free acid, calculated as oleic acidper cen	t	.1 .2 .2 .2 .5
Alkaline salts, calculated as potassium carbonate (K <sub>2</sub> CO <sub>2</sub> ).per cen	t	2
Matter insoluble in distilled waterper cen		.2
Chloride, calculated as potassium chloride (KCl)per cen	t	.5
Anhydrous soap, calculated as potash soapper cen	t 40	****
Total sodium compounds, calculated as NasOper cen	t	.5
Glycerol (per cent of annydrous potash soap)per cent Iodine number (WIJS) of mixed fatty acids derived	t	.8
from the soap	100	
Rosinper cent		6
Sugar		None

submit with his proposal a 1-quart sample of the soap that he proposes to furnish, packed in a screw-top glass jar, to show odor, color, and consistency. The sample so furnished shall be kept for comparison with samples from deliveries. The material shall not become rancid or otherwise deteriorate when kept in a closed container.

The paste soap shall conform to the detail requirements listed in the table on the previous page, percentages are by weight:

### Soap; Low-Titer (P-S-600)

Low-titer soap shall be of the following types and classes:

Type I-Bar form

Type II-Other forms

Class A-Granular

Class B-Powdered

Class C-Flake

The soap shall have a uniform color. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller. When specified, each bidder

Detail Requirements for Potash Linseed Soap

	Minimum	Maximum
Moisture (toluol distillation method)per cer	it	55
Total matter insoluble in alcoholper cer	it	1.0
Free alkali, calculated as potassium hydroxide (KOH)per cer	ıt	.1
Free acid, calculated as oleic acidper cer	nt	.2
Alkaline salts, calculated as potassium carbonate (K2CO2) .per cer	nt	2
Matter insoluble in distilled waterper cer	ıt	2
Chloride, calculated as potassium chloride (KCl)per cer	nt	.2 .2 .2 .5
Unsaponified and unsaponifiable matterper cer		1.0
Anhydrous soap, calculated as potash soapper cen		
Total sodium compounds, calculated as Na <sub>2</sub> Oper cer	nt	.5
Glycerolper cer	ıt	.8
Iodine number (WIJS) of mixed fatty acids derived from the soa	p 175	
Acid number of mixed fatty acids derived from the soap		205
Rosin		None
Sugar		None

shall submit with his proposal a sample of the material that he proposes to furnish, to show color, odor, and condition.

Low-titer soap shall conform to detail requirements as listed below:

### Potash Linseed Oil Soap, Liquid and Paste, for Floor and General Cleaning (P-S-603)

Potash-linseed oil soap shall be a uniform translucent, firm gel or paste soap made from linseed oil fatty acids and potash. The material shall be yellowish-white to greenish-brown color. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with a water solution of the soap and rinsing thoroughly with plain water. Moisture (by distillation method, using toluol instead

of xylol) shall not exceed 55 per cent. Deliveries which yield more than 55 per cent of moisture shall be rejected without further test. The soap shall dissolve readily to give a 0.15- to 0.2-per cent solution, using distilled water at 15.5° to 20° C. (60° to 68° F.). The solution so prepared shall yield a good suds. A solution of the soap in soft water shall act as a cleaner and shall not damage floor surfaces. When specified, each bidder shall submit with his proposal a 1-quart sample of the soap that he proposes to furnish, packed in a screw-top glass jar, to show odor, color, and consistency. The sample so furnished shall be kept for comparison with samples from deliveries. The material of each type shall not become rancid or otherwise deteriorate when kept in a closed container. The material shall conform to the detail requirements in the table above. Percentages are by weight.

### Detail Requirements for Low Titer Soap

	Type I		Type II	
	Max.	Min.	Max.	Min.
Matter volatile at 105° C. (per cent)	35.0	**	7.0	
in alcohol, and sodium chloride (per cent) Free alkali, calculated as sodium hydroxide (NaOH)	2.0	**	4.0	
(per cent)	0.1		0.2	
Free acid, calculated as oleic acid (per cent)	.1		2	
Matter insoluble in water (per cent)	.5		.2	
Rosin	None		None	
Sugar			None	
Insaponified matter (per cent)	1.0		1.0	
Anhydrous soap (per cent)		61.0		87.0
Titer of the mixed fatty acids prepared from the soap lodine number (Wijs) of the mixed fatty acids pre-	28° C		28° C	
pared from the soap	105.0	74.0	105.0	74.0
	205.0	180.0	205.0	180.0
(per cent)			1.5	
Total glycerol content (per cent of anhydrous soap)	0.8		0.8	

### Soap Powder (P-S-606a)

Soap powder shall be a uniform mixture of soap and sodium carbonate, and/or other alkaline salts in powdered form. It shall be readily soluble in tepid water, shall contain no free caustic alkali or inert fillers, and shall be free from objectionable odor.

Anhydrous soap shall be not less than 15 per cent. Alkaline salts, calculated as sodium carbonate (Na<sub>2</sub>CO<sub>8</sub>) shall be not less than 30 per cent. The sum of anhydrous soap and alkaline salts, calculated as

sodium carbonate shall be not less than 55 per cent. Total glycerol content shall not exceed 1 per cent of the calculated weight of the anhydrous soap present.

### Salt Water Soap (P-S-611a)

Salt-water soap shall be a soap well made from pure coconut oil fatty acids, pure palm kernel oil fatty acids, or a mixture thereof, and soda. It shall be entirely soluble in both sea water and fresh water and shall make a suitable lather. The soap shall be light in color and free from objectionable odor. The material shall conform to the detail requirements listed in the table below.

The percentage of moisture and volatile matter shall be computed, and reported by the testing laboratory, on the soap as received. The percentages of all other constituents shall be calculated and reported on an assumed moisture and volatile matter content of 55%, except glycerol which shall be calculated and reported on the basis of the anhydrous soap content.

### White Floating Toilet Soap (P-S-616a)

Floating toilet soap shall be a cake soap without objectionable odor, thoroughly saponified, and so prepared as to float on water.

Moisture and matter volatile at 105° C. shall not exceed 34 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 2.0 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Chloride, calculated as sodium chloride (NaCl), shall not exceed 1 per cent. Matter insoluble in water shall not exceed

0.2 per cent. Anhydrous soap shall be not less than 62 per cent. Sugar and foreign matter shall not be present. Rosin, maximum 10 per cent. Glycerol (per cent of anhydrous soap), maximum 0.8 per cent. The percentage of moisture and volatile matter will be computed on the basis of the soap as received, but all other constituents will be calculated on an assumed moisture and volatile matter content of 34 per cent, except glycerol which shall be calculated and reported on the basis of the anhydrous soap content.

### Liquid Toilet Soap (P-S-618a)

Liquid toilet soap shall be a clear solution of pure vegetable oil potash (or potash and soda) soap with or without glycerol or alcohol, suitably perfumed, and free from all foreign matter. It shall quickly form a satisfactory lather and have no injurious effect and leave no objectionable odor on the skin.

The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave any objectionable odor on the skin or other surfaces after washing with a water solution of the soap and rinsing thoroughly with plain water. Unless otherwise specified each bidder shall submit with his proposal a one-quart sample, placed in a screwtop glass jar, to show odor, color, and consistency. The sample so furnished shall be kept for comparison with samples from deliveries.

The material shall be a clear solution, free from objectionable odor, other than from coconut oil, and shall form a satisfactory lather. Total anhydrous soap shall be not less than the equivalent of 15 per cent

potash soap. Total matter insoluble in alcohol shall not exceed 0.5 per cent. Free alkali calculated as potassium hydroxide (KOH) shall not exceed 0.05 per cent. Chloride calculated as potassium chloride (KCl) shall not exceed 0.3 per cent. More than traces of sulphates and sugar shall not be present. All constituents shall be calculated on the basis of the original sample.

### Milled Toilet Soap (P-S-621a)

Milled toilet soap shall be a high grade, milled cake soap as free as possible from water, either colored or uncolored, and mildly perfumed unless otherwise specified, thoroughly saponified, well compressed in firm, smooth cakes of a size and shape specified in the contract. It should lather freely when used with cold, soft water.

Moisture and matter volatile at 105° C. shall not exceed 15 per cent. Deliveries which yield more than 15 per cent of volatile matter will be rejected without further test. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 1.7 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Matter insoluble in water shall not exceed 0.4 per cent. Unsaponified saponifiable matter shall not exceed 0.3 per cent. Anhydrous soap shall be not less than 83 per cent. Sugar and foreign matter shall not be present. Rosin, maximum 10 per cent. Glycerol (per cent of anhydrous soap), maximum 0.8 per cent. The percentage of moisture and matter volatile will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 15 per cent of volatile matter, except glycerol which shall be calculated and reported on the basis of the anhydrous soap content.

# Powdered Toilet Soap (for (Dispensers) (P-S-626a)

Powdered toilet soap for use in dispensers shall be a thoroughly saponified soap in powdered form,

### Detail Requirements for Salt Water Soap

20.	laximum	Minimum
Moisture and matter volatile at 105°Cper cent	55.0	
Total matter insoluble in alcoholper cent	3.0	2.0
Free alkali, calculated as sodium hydroxide (NaOH) per cent		
Chloride, calculated as sodium chloride (NaCl)per cent	3.0	2.5
Anhydrous soapper cent		38.0
Matter insoluble in waterper cent	.5	
Acid number of the mixed fatty acids prepared from the soap		240
Sugar, and foreign matter	None	
Rosinper cent	2.0	* *
Total glycerol content (per cent of anhydrous soap)	0.8	* *

made from soda and fats; shall be uncolored and mildly perfumed, unless otherwise specified; shall be a uniform, free-flowing, noncaking powder; and shall lather freely when used with cold soft water.

The material shall be a uniform powder and shall be freeflowing and noncaking when used in a dispenser conforming to type III or IV of Federal Specification FF-D-396. It shall lather freely when used with soft water at room temperatures. Shall be mildly perfumed, unless otherwise specified. If desired, shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an airtight, closed container for comparison with samples from deliveries.

Shall be uncolored, unless otherwise specified. Matter volatile at 105° ±2° C. shall not exceed 6 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 2.0 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Matter insoluble in water shall not exceed 0.2 per cent. Anhydrous soda soap shall be not less than 91 per cent. Rosin, sugar, and foreign matter shall not be present. Total glycerol content shall not exceed 0.8 per cent of the calculated weight of the anhydrous soap present. The material shall meet the following fineness requirements:

R	etain	ed on-					Maximum Per Cent
No.	12	sieve.				_	1.5
		sieve.				50	-
		sieve.				90	-

### Toilet Soap-Borax Compound (for Dispensers) (P-S-628)

Soap and borax compound for use in dispensers shall be a uniform mixture of a thoroughly saponified soap and borax (Na<sub>2</sub>B<sub>2</sub>O<sub>5</sub>. 10 H<sub>2</sub>O); shall be free from added coloring matter and mildly perfumed, unless otherwise specified; shall be a uniform free-flowing, noncaking powder, when used in a dispenser conforming to Type III or

IV of Fed. Spec. FF-D-396. It shall lather freely when used with soft water at room temperature. Anhydrous soda soap shall be not less than 23 per cent and not more than 27 per cent. Borax, calculated as Na<sub>2</sub>B<sub>4</sub>O<sub>1</sub>. 10 H<sub>2</sub>O, shall be not less than 72 per cent and not more than 77 per cent. The pH of a 1 per cent solution by weight of the material in distilled water shall be not less than 9.0 and not more than 10.2 at 25° C., using a glass electrode. Matter insoluble in water shall not exceed 0.2 per cent. Sugar, and foreign matter shall not be present. Rosin shall not exceed 4.5 per cent. Total glycerol content shall not exceed 0.8 per cent of the calculated weight of the anhydrous soap present. The material shall meet the following fineness requirements:

Re	tain	ed on-			Maximum Per Cent
No.	12	sieve	 	-	0
		sieve		5	Special Co.
		ciano		45	

### Caustic Soda for Cleaning (P-S-631a)

Caustic soda shall be of but one grade. It shall be furnished in airtight containers (13-ounce cans or drums) in flake, ground, or lump form, as specified in the invitation for bids. It shall conform to the following detail requirements:

Sodium hydroxide (NaOH) shall be not less than 95 per cent.

Carbonate, calculated as sodium carbonate (Na<sub>\*</sub>CO<sub>\*</sub>), shall not be more than 2 per cent.

### Laundry Soda (Washing Soda) (P-S-641a)

Laundry soda shall be a white uniform powder composed of sodium carbonate and sodium Licarbonate. It shall conform to the following detail requirements:

	Maximum Per Cent	
Total alkalinity, calc lated as Na <sub>2</sub> O	u-	39
Sodium bicarbonate (NaHCO <sub>2</sub> )	50	35
Sodium carbonate (Na <sub>2</sub> CO <sub>2</sub> )	50	35
Sum of sodium carb nate and sodium l carbonate	oi-	85
Matter insoluble in	1	-

### Cleaning Compound (P-C-565) Soap—Abrasive Type for painted surfaces

The product is to be without objectionable odor, and not harmful to the hands. The seller must label each container with directions for use. The product must be capable of being applied either with a damp cloth or sponge. It is to be a uniform soft paste, meeting the following requirements.

Matter volatile at 105°C. shall not exceed 65% by weight. It shall contain not more than 0.1% by weight of free alkali calculated as NaOH. It shall contain not more than 0.5% by weight free acid calculated as oleic acid. Alkaline salts calculated as Na<sub>2</sub>CO<sub>3</sub> shall not exceed 5% by weight. Insoluble siliceous matter shall not be less than 25% nor more than 50% by weight. All of the insoluble siliceous matter shall pass through a No. 80 sieve; and not more than 15% shall be retained on a No. 200 sieve. Anhydrous soap shall be not less than 3.5% by weight. Total glycerol content shall not exceed 0.8% of the weight of anhydrous soap contained in this product.

A special test is provided for determination of abrasive properties. A thin film of the compound is spread over a clear microscopic slide. Another slide is placed over the film and the two slides pressed together, using a slight pressure, and rubbing one slide over the other with a rotary motion. The slides when wiped clean of the compound shall not be scratched.

### Grease-Cleaning Compound Solvent-Emulsion Type (P-C-576)

Grease-cleaning compound shall be furnished in two types, Type I, non-phenolic, and Type II, phenolic, to be used for military purposes only. The compound shall be uniform liquid and shall be suitable for the purpose intended.

Type I, nonphenolic

Flash point shall be not less than 200° F. (open cup). The compound shall have a neutralization number of not more than 8 (mg. of KOH to neutralize 1 gm. of compound). The compound shall have no free alkali. The pour point shall be not more than 35°F. The loss in weight shall be not more than 10 per cent after a 24-hour period. Shall be free from phenols. Physical and performance tests covering stability of emulsion, solubility in kerosene and in water, etc., are also provided.

Type II, phenolic

As above except that the material is to contain not less than 15 per cent and not more than 25 per cent phenols by volume, and must pass a phenol ( $C_6H_5OH$ ) limitation test.

### Mechanics' Hand Detergent (P-D-221)

Detergent for mechanics use shall be of one type only. It shall be a uniform mixture in powder form, as specified, and shall be satisfactory for removing oil, grease, paint, printing inks, and other occupational soil from the hands of automobile mechanics, machinists, and other operatives without harmful effect on the skin.

The material shall be a uniform, free-flowing powder. odor shall not be objectionable. If desired shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an airtight, closed container for comparison with samples from deliveries. Volatile matter at 105° to 110° C. shall not exceed 5 per cent. Deliveries which yield more than 5 per cent of volatile matter shall be rejected without further test. Alkaline salts, calculated as sodium carbonate (Na2CO3), shall be not less than 2 per cent nor more than 5 per cent. The alkaline salts shall consist of borax, sodium carbonate or a mixture thereof. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Free acid, calculated as oleic acid, shall not

exceed 0.2 per cent. Anhydrous soap, calculated as soda soap, shall be not less than 17 per cent. Insoluble siliceous matter shall be not less than 60 per cent nor more than 76 per cent and shall conform to the following fineness requirements:

Retai	ned on— Maximun Per Cent	7
No. 6	sieve 5	
	sieve 30	
No. 200	sieve 60	

Rosin or sugar shall not be present. Total glycerol content shall not exceed 0.8 per cent of the weight of the anhydrous soap contained in this product. All constituents shall be reported on the basis of the sample as received, except glycerol which shall be determined on the basis of the anhydrous soap content.

### Special Detergents (P-D-236)

Detergents for aluminumware shall be of the following types and classes:

Type I. Detergent for use in mechanical dishwashing machines.

Type II. Detergent for manual cleaning.

Class A. Non - abrasive cleaner.

Class B. Abrasive cleaner.

The material used in Type I detergent shall be suitable for use in mechanical dishwashing machines and shall be substantially uniform in appearance throughout. It shall be free from objectionable odor, and shall dissolve readily in tepid water. Cleaner may be supplied in either powder, granule or chip form provided it conforms to the detailed requirements.

The material used in Type II, Class A non-abrasive cleaner shall be suitable for any type of manual washing where abrasiveness is not desired, and shall be substantially uniform in appearance throughout. It shall be free from objectionable odor, and shall dissolve readily in tepid water. Cleaner may be supplied in either powder, granule or chip form provided it conforms to the detailed requirements.

The material used in Class B abrasive cleaner shall be suitable

for any uses requiring a manual cleaner where soil adheres too tenaciously for non-abrasive cleaners. It may be supplied in the form of a solid, a paste, or a combination of any two of the above. Combinations of metal wools and soaps may be supplied. The cleaner shall be free from objectionable odor and from poisonous or irritant chemicals.

Each bidder shall submit with his proposal for Type I and Type II. Class A, materials a sample of the material that he proposes to furnish. Each sample shall be labeled to show the amount recommended for softening 10 gallons of water containing 10 grains (171 p.p.m.) of hardness, calculated as CaCO<sub>3</sub>, and may be used by the inspector or purchasing officer in the recommended proportions for determining the performance or cleaning ability of the material.

Samples from deliveries shall be subjected to similar tests. If specified by the purchasing officer, the material, when used in the proportions recommended by the bidder, shall be at least equal in cleaning ability to a standard sample furnished, or indicated, by the purchasing officer.

Type I. Detergent for use in mechanical dishwashing machines shall conform to the following detail requirements: Turbidity -When tested by the method described in paragraph F-2b (1), (See complete specifications) the weight of the precipitate obtained shall be less than 20 mg. for 250 ml of solu-Foaming-When tested by tion. the method described in paragraph F-2c, no foam or suds shall be detected. Corrosion-when tested by the method described in paragraph F-2f (1), the detergent solution shall be without visible action on bare or anodic oxide-coated aluminum alloy. Water-Softening Capacity-A suds which is stable for not less than 5 minutes shall be formed when the material is tested as described in paragraph F-2d. Hydrogen Ion Content and Buffer Index-When tested by the method outlined in paragraph F-2g, the

detergent solution shall have an initial pH of not less than 10.0, and shall have a pH of not less than 9.0 after the addition of thespecified amount of hydrochloric acid solution. Cleaning Ability-The material shall clean satisfactorily when tested as indicated in paragraph F-2a. The relative cost of the detergent shall be determined from the product of the delivered price per pound of the detergent and the number of pounds of the detergent required to treat 1000 gallons of water containing 10 grains (171 p.p.m.) per gallon of hardness, calculated as CaCO. The amount of detergent used in this computation shall be that required to give the concentration used in paragraphs F-2b (1) and F-2d of this specification.

Type II, Class A. Non-Abrasive Cleaner shall conform to the following detail requirements:

Turbidity-The turbidity of the cleaner solution shall conform to the test described in paragraph F-2b (2). (See complete Specifi-Corrosion-When tested cation.) by the method described in paragraph F-2f (2), the cleaner solution shall be without visible action on bare or anodic oxide-coated aluminum alloy. Water Softening Capacity - A suds which is stable for not less than 5 minutes shall be formed when the material is tested as described in paragraph F-2e. Hydrogen Ion Content-The pH of a 1 per cent solution by weight of the cleaner in distilled water shall not exceed 10.5 when measured as indicated in paragraph F-2h. Cleaning Ability-The material shall clean satisfactorily when tested as indicated in paragraph F-2a. Total glycerol content shall not exceed 0.8 per cent of the weight of anhydrous soap contained in this product, following the methods given in section F of Federal Specification P-S-Relative Cost-The relative cost of the cleaner shall be determined from the product of the delivered price per pound of the cleaner and the number of pounds of the cleaner required to treat 1000 gallons of water containing 10 grains

(171 p.p.m.) per gallon of hardness, calculated as CaCO<sub>5</sub>. The amount of cleaner used in this computation shall be that required to give the concentration used in paragraphs F-2b (2) and F-2e of this specification.

Type II, Class B. Abrasive Cleaner shall conform to the following detail requirements: Abrasion -When tested by the method described in paragraph F-2i (See complete Specification) the cleaner shall produce no undesirable scratch-Corrosion-When tested by the method described in paragraph F-2f (3), the cleaner shall be without visible action on bare or anodic oxide-coated aluminum alloy. Rinsibility-When tested by the method described in paragraph F-2j, the cleaner shall be removed completely from a glass plate. Cleaning Ability -The material shall clean satisfactorily when tested as indicated in paragraph F-2a.

### Sweeping Compound (P-C-591a)

Sweeping compound shall consist of a uniform mixture of the materials as specified for each type and shall be artificially colored or uncolored as specified by the purchaser. If desired, shall conform to the color of a sample mutually agreed upon by buyer and seller. The material shall not stain flooring surfaces on which it is used.

Type I. — Sawdust- Sand-Mineral Oil.

Odor shall not be objection-If desired shall conform to the odor of a sample mutually agreed upon by buyer and seller. The material shall not give off flammable vapors when tested according to paragraph F-2b. Matter volatile at 105-110° C. shall be not more than 10 per cent by weight. Refined mineral oil (such as paraffin oil) shall be not less than 15 per cent and not more than 20 per cent by weight. Clean, fine, sharp sand or feldspar sand shall be not less than 35 per cent and not more than 50 per cent by weight. Not more than 1 per cent by weight of sand (based on sand content) shall be retained on a No. 20 sieve when tested according to paragraph F-2k. Fatty oils shall not be present. The remainder shall be finely ground sawdust. Not more than 1 per cent by weight of sawdust (based on sawdust content) shall be retained on a No. 8 sieve when tested according to paragraph F-2k.

Type II — Sawdust-Sand-Water wax emulsion.

Odor shall not be objection-If desired shall conform to able. the odor of a sample mutually agreed upon by buyer and seller. The material shall not give off flammable vapors when tested according to paragraph F-2b. Matter volatile at 105-110° C. shall be not more than 12 per cent by weight. Clean, fine, sharp sand, or feldspar sand shall be not less than 60 per cent and not more than 70 per cent by weight. Not more than 1 per cent by weight of sand (based on sand content) shall be retained on a No. 20 sieve when tested according to paragraph F-2k. Finely ground sawdust shall be not less than 5 per cent and not more than 10 per cent by weight. Not more than 1 per cent by weight of sawdust (based on sawdust content) shall be retained on a No. 8 sieve when tested according to paragraph F-2k. The remainder shall be waxes and emulsifying agents.

### Liquid Automobile Polish (P-P-546)

Shall be suitable for use on lacquer, baked enamel and synthetic enamel finishes. Shall have no objectionable odor. Shall be a stable aqueous emulsion containing a suitable abrasive in suspension. The polish shall be a free-flowing fluid that can readily be applied with a cotton cloth and shall spread easily. Non-volatile matter, total solids, shall be not less than 25 per cent by Ash content, based on non-volatile, shall be not less than 35 per cent nor more than 50 per cent by weight. No free caustic alkali. Neutralization number shall be not more than 5. All of the material shall pass through a No. 200 sieve, and not less than 95 per

cent, based on ash content, shall pass through a No. 325 sieve. Volatile matter shall be essentially water. Physical and performance tests are also specified.

# Liquid Furniture Polish (P-P-552)

The polish shall be free from abrasives and suitable for use on finishes on wood and metal furniture. It shall have no objectionable odor. It shall be a stable colloidal emulsion of oil in water. It shall be a free-flowing fluid that can readily be applied with a cotton cloth and easily spread. Non-volatile matter shall be not less than 40 per cent by weight, and shall be essentially a well-refined petroleum oil. Ash content, based on nonvolatile matter, shall be not more than 1 per cent by weight. Volatile matter shall be essentially water. No free caustic alkali shall be present. The saponification number shall be not more than 30. Physical and performance tests are also specified.

### Metal Polish (P-P-556a)

Metal polish shall be of the following types:

Type I. Powder.
Type II. Liquid
Type III. Paste.

Metal polish of each type shall be of but one grade. It shall be a product, with or without a finely divided abrasive, suitable for the removal of tarnish from brass, nickel, copper, and other metals and capable of producing a luster there-

All types of metal polish shall have good tarnish removing properties, good luster-producing properties, shall give good protection to the polished surface against tarnishing influences, and shall be so constituted and prepared that, by reason of application and polishing, they—

- (1) Shall not scratch metals.
- (2) Shall not leave the metal discolored or caked with abrasive material.
- (3) Shall not be detrimental in any manner to metals.
- (4) Shall not show any unnecessary caking of type I or III

polish in the containers. The abrasive material in liquid (Type II) polish, shall show no caking in the container, which cannot be readily put into suspension by thoroughly shaking the containers. The abrasive material shall be of such particle size that 100 per cent will pass through a No. 200 sieve.

Metal polish shall be free from acids, cyanide of potassium or other cyanides, grit, or other ingredients having detrimental effects on metals. Shall clean quickly, leaving a bright polished surface, with a full luster for the material being polished. When so specified the tarnish-removing and lusterproducing properties shall be equal in quality to those of a standard sample furnished or approved by the purchaser. The polished surface shall remain free from corrosion or discoloration for a period of at least 24 hours.

Polish shall have good keeping qualities and be guaranteed for 1 year from the date of actual receipt at point of delivery. During the guaranty period the successful bidder shall replace without cost any metal polish which through deterioration, evaporation, caking in the container, or other causes, becomes unfit for use. Replacement metal polish shall also be guaranteed for 1 year from date of receipt. The metal polish will be stored in original unopened shipping containers, not subjected to freezing temperature or to excessive artificial heat. The amount of volatile matter, at 105° to 107° C., in either type II or III polish, shall not exceed 70 per cent by weight, of the polish. The flammability of the liquid contents of types II and III polishes shall not be not less than 39° C.

### Silver Polish (P-P-571b)

Silver polish shall be of the following types:

Type I. Liquid. Type II. Paste.

Type III. Powder.

Silver polish shall be of but one grade, and shall consist solely of finely ground diatomaceous or infusorial earth, prepared as a powder (Type III) or suitably compounded with a neutral soap, to produce a liquid (Type I) or paste (Type II).

All types of silver polish shall have—

- (a) Good tarnish-removing properties.
- (b) Good luster-producing properties and shall be so constituted and prepared that by reason of application and polishing, they—
- (1) Shall not scratch silverware.
- (2) Shall not leave silver discolored.
- (3) Shall not leave any residue (which will cause discoloration) not removable by washing in warm soapy water.
- (4) Shall not show any unnecessary caking of Type II or III polish in the containers. The abrasive material in liquid (Type I) polish, shall show no caking in the container which cannot be readily put into suspension by thoroughly shaking the containers.

The diatomaceous or infusorial earth in all types of silver polish shall be of such particle size that 100 per cent will pass through a No. 200 sieve.

Silver polish shall be free from acids or cyanides. Shall clean quickly leaving a bright polished surface, with a full luster for the material being polished. It shall have good keeping qualities and be guaranteed for 1 year from the date of actual receipt at point of delivery. During the guaranty period the successful bidder shall replace, without cost, any silver polish which through deterioration, evaporation, caking in the container or other causes, becomes unfit for use. Replacement silver polish shall also be guaranteed for 1 year from date of receipt. The silver polish will be stored in original unopened shipping containers not subjected to freezing temperature or to excessive artificial heat. The amount of volatile matter, at 105° to 107° C., in either Type I or II polish, shall not exceed 70 per cent by weight, of the polish. The flammability of the liquid contents

of Types I and II polishes shall be not less than 39° C.

### Stove Polish (P-P-576)

Stove polish shall produce a deep, lustrous black color when applied as directed by the manufacturer. It shall produce no odors upon burning and shall produce a durable coating that will not readily be burned off.

Type I.—Polish, stove, liquid, shall be of such consistency that the addition of a fluid will not be necessary in order to make it free-flowing. The vehicle of the polish shall be a non-inflammable liquid.

Type II. — Polish, stove, paste, shall be non-inflammable and shall be of such consistency that it can be readily applied.

Type III. — Polish, stove, powder, shall readily form a paste with water, and shall be non-inflammable.

Type IV. — Polish, stove, cake, shall readily disintegrate in water and form a paste and shall be non-inflammable.

### Scouring Powder for Floors (P-P-591)

Scouring powder for floors shall be of the following types, as specified: Type A—for fine marble floors; Type B—for tile or ceramic and terrazzo floors; Type C—soap scouring compound.

Type A — (For fine marble floors).

Matter volatile at 105° to 110° C. shall not exceed 10 per cent. Deliveries which yield more than 10 per cent of volatile matter shall be rejected without further test. The sum of sodium carbonate (Na<sub>2</sub>CO<sub>2</sub>) and anhydrous soap shall not exceed 7 per cent nor be less than 2 per cent. Free alkali, calculated as sodium hydroxide (NaOH) shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 85 per cent nor more than 95 per cent. All of the insoluble siliceous material shall pass through a No. 100 sieve, and the residue retained on a No. 200 sieve shall not exceed 5 per cent. The material shall not scratch nor discolor marble. The material shall

be a uniform powder, shall be unscented, and shall be of a light gray or white color. Total glycerol content shall not exceed 0.8 per cent of the weight of anhydrous soap contained in this product.

Type B—(For tile or ceramic and terrazzo floors).

Matter volatile at 105° to 110° C. shall not exceed 10 per cent. Deliveries which yield more than 10 per cent of volatile matter shall be rejected without further test. The sum of sodium carbonate (Na<sub>2</sub>CO<sub>2</sub>) and anhydrous soap shall not be less than 2 per cent. Free alkali, calculated as sodium hydroxide (Na OH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 80 per cent nor more than 95 per cent. The insoluble siliceous material shall not yield more than 1 per cent of residue retained on a No. 60 sieve and not more than 10 per cent of residue retained on a No. 80 sieve. The material shall be a uniform powder, shall be unscented, and shall be of a light-gray or white color. Total glycerol content shall not exceed 0.8 per cent of the weight of anhydrous soap contained in this product.

Type C — (Soap scouring compound).

Matter volatile at 105° to 110° C. shall not exceed 6 per cent. Deliveries which yield more than 6 per cent of volatile matter shall be rejected without further test. Carbonated alkali, calculated as sodium carbonate (Na2CO3) shall not be less than 6 per cent nor more than 20 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Anhydrous soap shall be not less than 3 per cent nor more than 10 per cent. Insoluble siliceous material shall be not less than 60 per cent nor more than 90 per cent. The insoluble siliceous material shall not yield more than 1 per cent of residue retained on a No. 60 sieve and not more than 10 per cent of residue retained on a No. 80 sieve. The material shall be a uniform powder, shall be unscented, and shall be light-gray or white in color. Total glycerol content shall not exceed 0.8

per cent of the weight of anhydrous soap contained in this product.

### Scouring Powder for Glass (P-P-596a)

Shall be a fine, uniform powder, and shall be suitable for cleaning highly polished glass surfaces which must transmit light efficiently, such as cabin windows and windshields of aircraft.

The material shall clean glass surfaces satisfactorily without scratching the glass or leaving an oily or other film on the surface. The material shall be a uniform, freeflowing powder, shall be scented or unscented, and shall be white or light gray in color. Matter volatile at 105° ±2° C. shall not exceed 4 per cent. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na2CO2), shall not exceed 5 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 85 per cent nor more than 93 per cent, and shall consist of ground feldspar or other insoluble siliceous abrasive that will not scratch highly polished glass surfaces. All of the insoluble siliceous material shall pass through a No. 200 sieve. Rosin, sugar, and foreign matter shall not be present. Anhydrous soda soap shall be not less than 4 per cent and shall be within 1 per cent of the difference between 100 and the sum of the matter volatile at 105° ±2° C., insoluble siliceous material, and alkali as alkaline salts. Total glycerol content shall not exceed 0.8 per cent of the weight of anhydrous soap contained in this product.

### Floor Oil; Mineral (P-O-361)

Floor oil shall be a straightrun petroleum distillate suitable for use on wood floors. It shall have no objectionable odor; and may be perfumed with cedar oil, pine oil, or similar materials, when specified. It shall be a clear well-defined petroleum oil free from sediment and other foreign material, and shall meet the following requirements: The viscosity shall be not less than 70 nor more than 110 seconds (Saybolt Universal) at 100°F. The flash point shall be not less than 300°F. (open cup). The color shall be not darker than 3 N. P. A. (Lemon pale) (ASTM No. 3). The pour point shall be not more than 30°F. The saponification number shall not exceed 1.

### Floor Wax; Solvent-Type, Liquid (P-W-134)

The liquid wax shall dry to a film that polishes easily to a hard lustrous flexible surface. It shall not be so highly colored as to stain the surface, and shall dry within 45 minutes to a semi-transparent, nontacky film which shall show no signs of whiteness. It shall consist essentially of blended waxes with small amounts of resins in a volatile organic solvent. It shall be a heavy bodied liquid mixture of sufficient fluidity to permit freedom of application at 20° to 25° C. There shall be no appreciable settling of the suspended material. The liquid wax shall be smooth and shall be free from hard particles and granules.

Nonvolatile Matter (Total Solids).—There shall be not less than 11%, by weight, of nonvolatile matter in the liquid wax. The nonvolatile material shall meet the requirements shown in the table below:

Volatile Organic Solvent (Vehicle).—Shall consist of turpentine or volatile petroleum distillates, or any mixture thereof. The flash point of the volatile solvent shall be not less than 28° C. (closed cup).

Physical and Performance Tests.—Shall meet tests specified in paragraph F-2b.

### Water Emulsion Floor Wax (P-W-151a)

The floor wax shall dry to a non-tacky, lustrous finish without

rubbing, buffing, or polishing. The film produced shall adhere firmly to the surface without checking, cracking, or peeling and shall be transparent and practically colorless. The floor wax shall be suitable for use on sealed floors and flooring. It shall have no objectionable odor. It shall be a stable aqueous colloidal emulsion of waxes and resins. The emulsion shall be a free-flowing fluid that can readily be applied with an applicator such as lamb's wool, cotton cloth, or a mop to spread easily and uniformly. The film so applied shall dry to a lustrous finish.

The floor wax shall meet the following requirements:

Nonvolatile matter (total solids).—Shall be not less than 12 per cent.

Wax content and softening point.—The wax content of the total solids shall be not less than 65 per cent, by weight, and shall have a softening point of not less than 77° C.

Ash content (based on nonvolatile matter content).—Shall not exceed 3.5 per cent.

Free caustic alkali-None.

Volatile solvents. — Shall be free from petroleum distillates and other organic volatile solvents.

Dilution properties.—Shall be capable of dilution in any proportion with distilled water without breaking the emulsion.

Physical and performance tests are also provided.

### Floor Wax (P-W-158)

The product shall dry to a film that polishes easily to a hard lustrous flexible surface. It shall not be so highly colored as to stain the surface; and shall dry within 45 minutes to a semitransparent non-tacky film which shall show no signs of whiteness. Floor wax shall consist essentially of blended waxes in a

volatile organic solvent. It shall be free from rosin.

Type I (liquid)—Shall be a heavy bodied liquid mixture of suitable consistency to permit freedom of application at 20° to 25° C. There shall be no appreciable settling of the suspended material. The liquid wax shall be smooth and shall be free from hard particles and granules. There shall be not less than 11 per cent, by weight, of non-volatile matter in the liquid wax. The nonvolatile matter shall meet the following requirements:

	Minimu	n Maximum
Softening point	71°	C. —
Acid value		8
Saponification value	20	70
Ash content, per cer	nt —	0.5

The vehicle shall consist of turpentine or volatile petroleum distillates, or any mixture thereof. The flash point of the volatile solvent shall be not less than 28° C. (closed cup). Physical and performance tests are also provided.

Type II (paste).—Shall be a semi-solid material at 20° to 25° C. There shall be no separation of liquid from paste. The paste shall be smooth and shall be free from hard particles and granules. There shall be not less than 20 per cent, by weight, of non-volatile matter in the paste wax. The nonvolatile material shall meet the following requirements:

Mi	nimum	Maximum
Softening point	71°C.	_
Acid value	-	8
Saponification value	20	70
Ash content, per cent	_	0.5

The vehicle shall consist of turpentine or volatile petroleum distillates, or any mixture thereof. The flash point of the volatile solvent shall be not less than 28° C. (closed cup). Physical and performance tests are also provided.

### Floor Sealer (Lacquer Type) (TT-S-171)

The manufacturer is given wide latitude in the selection of raw material and processes of manufacture, provided that the sealer produced meets the requirements and tests. The product, when applied in accordance with directions shall satisfactorily seal the pores of the wood

### Requirements for Non-Volatile in P-W-134

	M	inimum	Maximum
Softening Point			**
Acid Value			18
Saponification Value		40	85
Iodine Number (WIJS)			22
Ash Content, Per Cent			0.5

leaving the wood surface in such condition as to provide a satisfactory foundation for a finishing material such as varnish, liquid or paste wax or water-emulsion wax. It shall be "natural" in color and of sufficient fluidity to permit application with a bristle brush or lamb's wool mop.

The floor sealer shall be a clear liquid free from sediment or suspended matter and shall be of such fluidity that no further thinning will be required. It shall meet the following requirements:

Nonvolatile matter.—Not less than 14 per cent.

Set-to-touch. In not more than 15 minutes.

Dry hard and tough.—In not more than 3 hours.

Nitrocellulose.—Not less than 20 per cent by weight of the non-volatile content.

Toughness, — Air-dried film on metal shall withstand rapid bending over a rod 3 mm. (1/2 inch) in diameter.

Viscosity. — Not more than 0.220 poise.

Performance tests are also specified.

### Wood and Cork Floor Sealers (TT-S-176a)

Floor sealers shall be furnished in one grade and two classes for use on wood and cork floors as follows: Class 1 — minimum nonvolatile content 40 per cent; Class 2 —minimum nonvolatile content 25 per cent. The manufacturer is given wide latitude in the selection of raw materials and processes of manufacture, provided that the sealer produced meets the requirements and tests described in this specification.

When applied in accordance with directions the product shall satisfactorily seal the pores of the flooring by absorption, leaving no apparent surface film and shall provide a satisfactory foundation for a finishing material such as varnish, liquid or paste wax, or water-emulsion wax. Unless otherwise specified, floor sealer shall be furnished "natural" in color. Floor sealer shall have sufficient fluidity to permit ap-

plication with a bristle brush or lamb's wool mop.

Both classes of sealers shall be nonpigmented materials and shall be capable of being thinned with turpentine or mineral spirits. The respective sealers shall meet the following requirements: Nonvolatile matter—Class 1, not less than 40 per cent; Class 2, not less than 25 per cent. Set to touch—in not less than 1 hour and not more than 4 hours. Dry, hard and tough—in not more than 18 hours. Water test—The sealer shall meet specified cold water

Toughness—Shall pass a 75 per cent Kauri reduction test at 25° C. (77° F.).

Flash point—Shall be not below 30° C. (86° F.). (Closed-cup.)

Viscosity at 25° C.—Class 1, not more than 0.50 poise; Class 2, not more than 0.220 poise.

Skinning—Shall be negligible when received and after 48 hours in a tightly closed half-filled container.

Odor—The odor in the can, during drying, and/or after drying shall not be abnormally offensive or disagreeable.

Performance tests are also specified.

# Liquid Insecticide (Fly Spray) (O-I-541a)

The insecticide shall not cause irritation to men nor be poisonous to man when applied in the usual manner. It shall have no greater detrimental action or metal or paint surface than a specified test solvent. It shall have no objectionable odor. It shall be formulated from a petroleum distillate base, free from kerosene odor and practically free from all odor, shall be clear and free from suspended matter and shall contain active ingredients so that it will test not more than 2 per cent below the O.T.I. in average percentage knockdown and at least 16 per cent above the O.T.I. in average percentage kill.

Initial boiling point shall not be below 350° F. and end point not above 530° F. Flash point shall be not less than 125° F. (closed cup). No residual odor shall be present, under a specified test. The product shall meet specified test for staining properties and corrosion.

# Liquid Insecticide (Household) (O-I-546a)

The specification follows closely along the lines of the specification for O-I-541a, with an addition requirement as follows, covering minimum pyrethrin content. "There shall be not less than 0.13 gram of Pyrethrin I with the normally acompanying amount of Pyrethrin II in 100 ml. of the liquid insecticide. Any additional ingredients which when incorporated in the product will comply with the requirements of this specification may be used to bring the strength of the product up to the performance requirements." The performance test specifies that it must test not more than 2% below the O.T.I. in knockdown and at least equal to the O.T.I. in kill.

### Insect Powder (O-P-571)

Insect powder shall consist of the powdered flower heads of Chrysanthemum (Pyrethrum) cinerariaefolium (Trev. Bocc.). It shall be a product resulting from the reduction to an impalpable powder of insect flower heads of the species named and free from added stems and other adulterants. It shall be made of flowers that have been properly harvested and cured so as to retain the maximum insecticidal efficiency and are free from mold, and the powder shall have the characteristic color and odor. It shall not contain insect flower stems in excess of the amount occurring attached to flowers as harvested, and in no case in excess of 5 per cent. It shall not contain more than 2 per cent of ash insoluble in dilute hydrochloric acid.

### Sodium Fluoride (O-S-601)

Sodium fluoride shall be a good grade commercial product in the form of a uniform, fine, dry, powder, suitable for dusting, free from lumps or gritty material and practically free from matter insoluble in water. It shall contain not less than 90 per cent of sodium fluoride.

NaF, the remaining 10 per cent to consist of the usual impurities in a good grade of commercial sodium fluoride, such as sodium silico-fluoride, sodium bifluoride, sodium carbonate, sodium chloride, sodium sulfate and added dye. It shall be colored by incorporating with it a suitable organic dye to produce a color ranging from "Pale Nile Blue" to "Nile Blue" as designated by Ridgeway's Color Standards.

### Shaving Cream and Soap (FFF-C-641)

Shaving soap and cream shall be of the following types and classes:

Type I. Soap:

Class (A)-Cakes.

Class (B)—Stick.

Class (C)-Powder.

Type II. Cream:

Class (A)-Lather cream.

Class (B)—Brushless

cream.

Shaving soaps, Type I, shall be high-grade products free of caustic alkalinity that yield a heavy, creamy lather that will remain moist upon the face until the shaving is completed. In the case of Class B (stick), the soap shall adhere to the face when the stick is moistened and rubbed thereon. In the case of class C (powder), the material shall be free-flowing and shall not cake in the container.

Lather cream — Class A, shall be a soft, uniform cream or paste free from free alkali. It shall distribute well into the bristles of a shaving brush and shall yield a heavy creamy lather that will remain moist upon the face until the shaving is completed.

Brushless cream—Class B shall be a soft, uniform cream or paste free from free alkali.

Type I. Shaving soap, Classes A, B, and C—

Color—shall be as specified by the purchaser. Odor—shall be pleasant and shall be as specified by the purchaser. Lathering quality—shall be satisfactory. Shall conform to the following test:

Shake 100 ml of a 0.2 per cent (based on the nonvolatile matter) solution of the soap (Type I, classes, A,

### Detail Requirements for Shaving Soap

TYPE I	Classes A and B cake and stick		Class C powder	
	Min.	Max.	Min.	Max.
	Per Cent	Per Cent	Per Cent	Per Cent
Matter volatile at 105° C	_	10		2
Matter insoluble in hot 95 per cent ethyl alcohol	-	.8	_	.8
Free alkali	-	None	_	None
Free fatty acids (calculated as stearic acid)	-	1.0	-	1.0
Matter insoluble in hot distilled water	-	.4	-	.4
Anhydrous soap (calculated as potash soap)	87	_	96	_
Amount passing a No. 20 sieve	_		100	-
Total glycerol content (per cent of anhydrous soap)		0.8	-	0.8

### Detail Requirements for Shaving Cream

TYPE II		Class A lather cream		B brush- cream
	Min.	Max.	Min.	Max.
	Per Cent	Per Cent	Per Cent	Per Cent
Moisture (toluene distillation method)	-	50		70
Matter insoluble in hot 95 per cent ethyl alcohol	-	.3	-	_
Free alkali	-	None	-	None
Free fatty acid (calculated as stearic acid)	_	6.5	15	-
Matter insoluble in not distilled water		.3	-	-
Anhydrous soap (calculated as potash soap)	40	-	-	-
Total glycerol content (per cent of anhydrous soap)		0.8	-	0.8

B, and C and Type II, class A) in distilled water at room temperature in a stoppered 200-ml graduated cylinder 30 times in 15 seconds, and let stand at room temperature for 1 hour. The volume of foam above the liquid shall extend to the top of the cylinder and shall not decrease more than 10 per cent of its original volume in 1 hour.

Caking (Class C only)—The material shall be free-flowing and shall not cake in a closed container at room temperature.

Type II. Shaving cream. Classes A and B—

Color—shall be as specified by the purchaser. Odor—shall be pleasant and shall be as specified by the purchaser.

Lathering quality (Class A only)—shall be satisfactory. Shall conform to the test described above.

Type I. Shaving soap, Classes A, B, and C—shall conform to the detail requirements shown in the accompanying table.

The percentage of volatile matter shall be computed, and reported on the soap as received. The percentages of all other constituents shall be calculated and reported on

an assumed volatile matter content of 10 per cent for Classes A and B and of 2 per cent for Class C, except glycerol which shall be calculated and reported on the basis of the anhydrous soap content.

### Technical Trisodium Phosphate (O-T-671a)

Technical trisodium phosphate shall be a white, uniform product and may be either granular, flake, or crystalline.

It shall contain not less than 98 per cent of trisodium phosphate calculated as Na<sub>3</sub>PO<sub>4</sub>.12H<sub>2</sub>O, from the total phosphoric anhydride (P<sub>2</sub>O<sub>5</sub>). It shall conform to the following detail requirements:

0 4		
		Maximum Per Cent
Trisodium phosphas calculated as Na <sub>8</sub> PC 12H <sub>8</sub> O, from tot	)4.	
P2Os Total alkalinity	98 to	-
methyl orange, calc lated as Na <sub>8</sub> O Phosphoric anhydri	16	19
(P₂O₅)	18.3	-
water		0.1

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# N.A.I.D.M. SPECIFICATIONS

Official Specifications of the National Association of Insecticide and Disinfectant Manufacturers for

# INSECTICIDES and DISINFECTANTS

### OFFICIAL SPECIFICATIONS Liquid Household Spray Insecticide

(Adopted December, 1936)

 A household spray oil type insecticide shall be harmless to man and warm blooded household animals, when used as directed.

2. When sprayed, as directed, it shall not stain fabrics, wall paper and general household furnishings, that are not stained by dry cleaning fluid.

3. When used in the customary manner it shall not contaminate closed packages of food materials commonly found in homes

4. It shall not corrode metals.

5. It shall have no objectionable odor, and no particular odor shall be specified.

6. It shall have a flashpoint not less than 125° F. when tested in the Tagliabue closed cup.

7. It is recommended that it be purchased on a direct competitive basis with the Official Test Insecticide of the National Association of Insecticide and Disinfectant Manufacturers, Inc., by using the method of test specified in literature accompanying the Official Test Insecticide.

8. The Association hereby adopts the following grades (the plus or minus figures shown therein designating the points over or under the Official Test Control Insecticide when the "Unknown" and the "Control" are tested at the same time in the same manner):

Desig-		Kill
nation	Grade	Classification
AA	Excellent	+ 16 or high
A	Very Good	+6 to + 15
B	Equal to Offi-	
	cial Test	
	Insecticide	+ 5  to  - 5

### 1: Standard Specifications for Liquid Hypochlorites Disinfectant, Deodorant and Germicide

Composition—Liquid hypochlorites are available in three forms: one, sodium hypochlorite alkaline with sodium hydrate, sodium carbonate or the other alkaline salts; two, hypochlorites which are essentially sodium hypochlorite and alkaline with calcium hydrate; and three, calcium hypochlorite solutions alkaline with calcium hydrate. A delivery of any one of these shall be satisfactory unless otherwise sperified.

Physical Requirements — The hypochlorite solution shall be a homogeneous liquid. It shall be miscible with water of zero hardness at 20° C. (68° F.) in all proportions. It shall be ready for dilution when delivered.

Chemical Requirements—The available chlorine content which shall not be less than 2.5 per cent by weight shall be clearly stated on the label. Its rate of deterioration shall not be more than 10 per cent of its original available chlorine content when stored in the original container for six months in a cool, dark place at maximum temperature of 68° F. (20° C.).

Identification—Each container shall be marked with the name of the material, the brand (if any) of the material, the name of the manufacturer, net contents therein, and date of manufacture.

Packing—The hypochlorite shall be delivered in standard commercial containers of the size as called for in the schedule. Each container holding one gallon or more shall be stoppered with a closure having vent.

### 2: Standard Specifications for Pine Oil Disinfectant

 The product shall be manufactured from pure steam distilled pine oil and emulsifying agent and remain clear and homogeneous under normal and reasonable conditions of storage.

2. It shall contain not less than 60 per cent by weight steam distilled pine oil.

3. It shall contain not more than 10 per cent water.

4. The phenol coefficient shall be determined by the F.D.A. Method of Test against B. typhosus and be clearly stated on the label attached to each shipping container.

5. It shall not contain kerosene or other petroleum distillates.

6. The product shall make a stable emulsion in water of zero hardness at 20° C. (68° F.) when diluted at the rate of 5 per cent. The emulsion shall stand for at least twenty-four hours showing no sign of oil float (unsaponified or clear free oil).

### 3: Standard Specifications for Emulsifying Type Coal Tar Disinfectant

1. It shall be made from phenols of coal tar or petroleum origin, or combina-

tions of such phenols with coal tar oils, and an emulsifying agent.

It shall contain not less than 65 per cent by weight of phenols and coal tar oils.

3. It shall contain not over 10 per cent of water, by weight.

 It shall not contain kerosene or any petroleum distillates other than phenols of petroleum origin.

5. The phenol coefficient shall be determined by the Food and Drug Administration Method using B. typnosus as test organism, and shall be clearly stated on the label attached to each shipping container.

6. It shall make milky emulsions with water of zero hardness at 20° C. (68° F.) when diluted in the ratio of 5 parts of disinfectant to 95 parts of water for disinfectants having phenol coefficients of 10 or under; and in the ratio of 2 parts of disinfectant to 98 parts of water for disinfectants having phenol coefficients of over 10. These emulsions shall show not more than a trace of oily float or sediment when stored for 5 hours at room temperature.

7. It shall remain limpid, showing no sign of naphthalene crystallization down to 0° C, in 3 hours.

8. It shall contain less than 5 per cent

 The disinfectant, under normal and reasonable conditions of storage, shall remain stable and show no loss of germicidal value.

### Certification and Labeling

10. The following form of statement on labels<sup>2</sup>, invoices, etc., is recommended:

<sup>&</sup>lt;sup>1</sup> This type of disinfectant is available with phenol coefficients ranging from 2 to 30, and higher. Contract buyers should specify the phenol coefficient desired.

<sup>&</sup>lt;sup>3</sup>When used on labels this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

### 4: Standard Specifications for Cresylic Disinfectants

Scope

1. This standard covers materials, physical and chemical properties, and certification of quality of phenolic disinfectant (soluble type), classified under two groups as follows:

(a) Group I—Phenolic disinfec-tants having phenol coefficients from

1.5 to 51.

(b) Group II-Phenolic disinfectants having phenol coefficients above 5.

### Detail Requirements (Group I)

- 2. Group I disinfectants shall be made from cresol or cresylic acid of coal tar or petroleum origin, and a dissolving agent.
- 3. Group I disinfectants shall contain not less than 50 per cent of cresol or cresylic acid, as determined by the method prescribed in U. S. Pharmacopoeia XI for the assay of cresol in the Saponated Solution of Cresol.
- 4. Group I disinfectants shall contain not more than 25 per cent by weight of inert ingredients (water plus glycerine, and organic solvents, if any).
- 5. The phenol coefficient of Group I disinfectants shall be determined by the Food and Drug Administration Method using B. typhosus as the test-organism, and shall be clearly stated on the label attached to each shipping container.
- 6. Group I disinfectants shall contain less than 5 per cent of benzophenol.
- 7. Group I disinfectants shall make clear solutions with water of zero hardness at 20° C. (68° F.) within the concentration range of from 1 to 4 per cent; such solutions, when kept in closed containers, shall remain either practically clear or become only slightly opalescent when allowed to stand for 24 hours at 20° C. (68° F.) away from direct light.
- 8. Group I disinfectants shall show no soap separation when cooled down to 0° C. and held at this temperature for 3 hours.

### Detail Requirements (Group II)

- 9. Group II disinfectants shall be made from phenols of coal tar or petroleum origin, and a dissolving agent.
- 10. Group II disinfectants shall contain not less than 50 per cent of phenols\*.
- 11. Group II disinfectants shall contain not more than 25 per cent by weight of inert ingredients (water plus glycerine and organic solvents, if any).
- 12. The phenol coefficients of Group II disinfectants shall be determined by the Food and Drug Administration Method using B. typhosus as the test-organism,

and shall be clearly stated on the label attached to each shipping container.

- 13. Group II disinfectants shall contain less than 5 per cent of benzophenol.
- 14. Group II disinfectants shall make clear solutions with water of zero hardness at 20° C. (68° F.) at concentrations of 2 per cent or less; such solutions, when kept in closed containers, shall remain either practically clear or become only slightly opalescent when allowed to stand for 24 hours at 20° C. (68° F.) away from direct light.
- 15. Group II disinfectants shall show no soap separation when cooled down to 0° C, and held at this temperature for 3 hours.

### Certification and Labeling

16. The following form of statement on labels3, invoices, etc., is recommended:

"The ......Company certifies this disinfectant to conform to all requirements for (Group I)

(Group II) standard adopted by the NATIONAL ASSOCIATION OF INSECTI-CIDE AND DISINFECTANT MANUFACTURERS, INC., and recorded as Commercial Standard CS71-.... by the National Bureau of Standards of the U.S. Department of Commerce.

### N.A.I.D.M. DEFENSE EMERGENCY SPECIFICATION "A" FOR PHE-NOLIC DISINFECTANT EMULSI-

Phenol Coefficient...."

FYING TYPE

### Purpose

1. The purpose of this defense emergency specification is to provide a minimum specification for quality, as a basis for understanding and voluntary guarantees between producers, distributors, and users in the purchase of the commodities covered by these specifications, and as a foundation for confidence on the part of purchasers that the efficacy of the material is that which may be expected of phenolic disinfectant (emulsifying type), manufactured in conformity with a recognized specification of a national trade association.

2. This specification covers materials, physical and chemical properties, and certification of quality of phenolic disinfectant (emulsifying type).

### Detail Requirements

- 3. The disinfectant shall not contain kerosene or any petroleum distillate other than phenols of petroleum origin.
- 4. The phenol coefficient shall be determined by the Food and Drug Administration method, using B. typhosus as test organism, and shall be clearly stated on the label attached to each shipping container.
- 5. The disinfectant shall make milky emulsions with water of zero hardness at 20° C. (68° F.) when diluted in the ratio of 5 parts of disinfectant to 95 parts of water for disinfectants having phenol

coefficients of 10 or under; and in the ratio of 2 parts of disinfectant to 98 parts parts of water for disinfectants having phenol coefficients of over 10. These emulsions shall show not more than a trace of oily float or sediment when stored for 5 hours at room temperature.

- 6. The disinfectant shall remain limpid, showing no sign of naphthalene crystallization down to 0° C. in 3 hours.
- 7. The disinfectant shall contain less than 5 per cent of benzophenol (phenol. C.H.OH).
- 8. The disinfectant, under normal and reasonable conditions of storage, shall remain stable and show no loss of germicidal value.

### Certification and Labeling

9. The following form of statement on labels\*, invoices, etc., is recommended:

The ..... Company certifies this phenolic disinfectant (emulsifying type) to conform to all requirements of a specification adopted and recorded as N.A.I.D.M. Defense Emergency Disinfectant Specification "A" by the National Association of Insecticide and Disinfectant Manufacturers, Inc.

\*When used on labels, this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

### N.A.I.D.M. DEFENSE EMERGENCY SPECIFICATION "B" FOR PHE-NOLIC DISINFECTANT SOLUBLE TYPE

### Purpose

1. The purpose of this defense emergency specification is to provide a minimum specification for quality, as a basis for understanding and voluntary guarantees between producers, distributors, and users in the purchase of the commodities covered by these specifications, and as a foundation for confidence on the part of purchasers that the efficacy of the material is that which may be expected of phenolic disinfectant (soluble type), manufactured in conformity with a recognized specification of a national trade association.

### Scope

2. This specification covers materials, physical and chemical properties and certification of quality of phenolic disinfectant, soluble type.

### General Requirements

- 3. The disinfectant shall be made from phenols of coal tar or petroleum origin and a dissolving agent.
- 4. The disinfectant shall not contain kerosene or any petroleum distillates other than phenols of petroleum origin.
- 5. The phenol coefficient shall be determined by the Food and Drug Administration method, using B. typhosus as test organism, and shall be clearly stated on the label attached to each shipping container.
- 6. The disinfectant shall make either a clear or opalescent mixture with dis-

<sup>&</sup>lt;sup>1</sup> The disinfectants of Group I fall within the type commonly designated "Cresylic disinfectants."

<sup>2</sup> A satisfactory method of assay of all possible types of disinfectants comprised by Group II is not available, but work on the subject is in progress. progress.

When used on labels, this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

tilled water at 20° C. (68° F.) within the concentration range of 1 to 4 per cent; when opalescent, it shall become practically clear upon addition of a few drops of a 10 per cent KOH solution.

7. It shall show no soap separation when cooled down to 0° C. and held at this temperature for 3 hours.

### Certification and Labeling

8. The following form of statement on labels\*, invoices, etc., is recommended:

The ...... Company certifies this phenolic disinfectant (soluble type) to conform to all requirements of a specification adopted and recorded as N.A.I.D.M. Defense Emergency Disinfectant Specification "B" by the National Association of Insecticide and Disinfectant Manufacturers, Inc.

\*When used on labels, this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

### N.A.I.D.M. SPECIFICATION "C" FOR PHENOLIC DISINFECTANT FROM SYNTHETIC PHENOLS

### Purpose

1. The purpose of this commercial standard is to provide a minimum specification for quality, as a basis for understanding and voluntary guarantees between producers, distributors, and users in the purchase of the commodity covered by these specifications, and as a foundation for confidence on the part of purchasers that the efficacy of the material is that which may be expected of phenol disinfectant from synthetic phenols, manufactured in conformity with a recognized specification of a national trade association.

### Scope

2. This specification covers materials, physical and chemical properties and certification of quality of phenolic disinfectants of synthetic origin.

### Detail Requirements

- The disinfectant shall be made from synthetic phenols of the type comprising alkyl, aryl, and aralkyl phenols, or their chlorinated or brominated derivatives, and a dissolving or emulsifying agent.
- 4. The phenol coefficient shall be determined by the Food and Drug Administration method, using B. typhosus as the test organism, and shall be clearly stated on the label attached to each shipping container.
- 5. The disinfectant, under normal and reasonable conditions of storage, shall remain stable and show no loss of germicidal value.
- 6. The disinfectant shall make stable emulsions or solutions with water of zero hardness at 20° C. (68° F.); they shall show not more than a trace of float or sediment when stored for 5 hours at room temperature.

### Certification and Labeling

7. The following form of statement on labels\*, invoices, etc., is recommended:

The ........ Company certifies this phenolic disinfectant from synthetic phenols to conform to all requirements of a specification adopted and recorded as N.A.I.D.M. Specification "C" by the National Association of Insecticide and Disinfectant Manufacturers, Inc.

When used on labels, this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

### N.A.I.D.M. SPECIFICATION "D" FOR FORTIFIED PHENOLIC DIS-INFECTANT

### Purpose

1. The purpose of this commercial standard is to provide a minimum specification for quality, as a basis for understanding and voluntary guarantees between producers, distributors, and users in the purchase of the commodities covered by these specifications, and as a foundation for confidence on the part of purchasers that the efficacy of the material is that which may be expected of a fortified phenolic disinfectant manufactured in conformity with a recognized specification of a national trade association.

### Scope

2. This standard covers materials, physical and chemical properties, and certification of quality of fortified phenolic disinfectant of both the emulsifying and soluble types.

### Detail Requirements

3. The disinfectant shall be made from phenols of coal tar or petroleum origin, plus synthetic phenols of the class comprising alkyl, aryl or aralkyl phenols or their chlorinated or brominated derivatives, and a dissolving agent.

4. The proportion of the synthetic phenol shall be not more than 25 per cent by weight of the total phenolic content.

5. The disinfectant shall not contain kerosene or any petroleum distillates other than phenols of petroleum origin.

6. The phenol coefficient shall be determined by the Food and Drug Administration method, using B. typhosus as test organism, and shall be clearly stated on the label attached to each shipping container.

7. The disinfectant, under normal and reasonable conditions of storage, shall remain stable and show no loss of germicidal value.

8. The disinfectant shall make stable emulsions or solutions with water of zero hardness at 20° C. (68° F.); they shall show not more than a trace of float or sediment when stored for 5 hours at room temperature.

### Certification and Labeling

9. The following form of statement on labels\*, invoices, etc., is recommended:

The ....... Company certifies this fortified phenolic disinfectant to conform to all requirements of a specification adopted and recorded as N.A.I.D.M. Disinfectant Specification "D," by the National Association of Insecticide and Disinfectant Manufacturers, Inc.

\*When used on labels, this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

### SIMPLIFIED PRACTICE RECOMMENDATION FOR SIZES OF GLASS CONTAINERS AND PACKAGES FOR HOUSEHOLD INSECTICIDES

### (Liquid Spray Type)

### Table 1.-Retail Packages

		Package Size	Exhibition No. in Limitation Order L-103	Overflow Capacity	Masimum Weight of Glass	Н	eight	Maximum Outside Diam. of Body	G.C.A. 400 Finish Size	Pack- ages per Shipping Case
		Fluid Ozs.		Fluid Ozs.	Avoir. Oss.	I	iches	Inches	M.M.	
1	pt.		80-50	16-31/32	11	6-41/64	overall	2-63/64	28	24
-	qt.		(80-75 )80-76	33-53/64 33-59/64	17½ 17¾	8-1/8 8-1/8	overall	3-47/64	28) 33) 38)	12
1	gal.	{bottle   jug	80-96 51.98	135% 136	173/4 60 48	12-9/16 9-3/8	overall bottom to neck bead	5-63/64 6-41/64	38)	4

### NOTES:

- 1. Finishes are interchangeable in accordance with provisions of the order.
- 2. When lower glass weights are used, adjustment to make correct capacity shall be made in the "B" dimension.
- 3. Profiles similar to those illustrated for Exhibit Series 80-00 for Boston Round Bottles and Series 51-00 for Glass Jugs as shown in WPB Limitation Order L-103 shall be maintained consistent with "C" and "D" dimensions.
- 4. Containers shall be round.
- 5. Bottom stippling optional.

# Floor Wax Specification

Official Specification and Standard Test Method of The National Assn. of Insecticide and Disinfectant Mfgrs.

A SPECIFICATION and standard method of testing for water emulsion floor waxes was adopted by the National Association of Insecticide & Disinfectant Manufacturers at a meeting in Cleveland, June, 1943. Specification and method follows:

### SPECIFICATION FOR WATER-DISPERSION FLOOR WAX

Applicable to Waxes of from 10 to 15% Total Solids

### A. General Requirements

- The material shall be suitable for application to all sealed floors and floor coverings in general.
- 2. The material shall be a stable aqueous colloidal dispersion of waxes and other suitable substances. The composition and properties of the material shall be such that it will meet all of the provisions of the detailed requirements, when tested by the NAIDM test methods.
- When applied in accordance with the manufacturer's direction, the material shall dry to a lustrous finish without polishing.

### B. Detailed Requirements

- Sediment. The material shall be a fluid dispersion containing not over 4 per cent sediment, the percentage being calculated on the basis of total solids.
- Stability. The material shall show no gelling or creaming when kept in closed containers at 52° C. (125° F.) for 168 hours (7 days).
- Application. The material is to be applied as a thin, uniform film to clean dry flooring surfaces.
- 4. Color and Transparency, A thin, dried film of the material, prepared by flowing onto a clear glass plate and drying in air at 25° C. (77° F.), shall be substantially transparent and practically colorless, as viewed by transmitted bright daylight.
- Leveling and Spreading. The material, when applied as a thin, uniform film on new linoleum shall dry without streaking.
- 6. Lustre or Gloss. The dried film shall increase the gloss of new linoleum not less than 10 per cent, as measured by a light reflectance meter.
- 7. Alkalinity. The material shall not have a pH greater than 10.0 nor less than 4.0.
- 8. Surface Tension. The material shall have a surface tension not

greater than 33 dynes per centimeter at 25° C. (77° F.).

- 9. Flexibility of Film. The dried film shall be sufficiently flexible so that no cracking will occur when a 2 coat application, on new linoleum, dried 48 hours at 25° C. (77° F.) and 50 per cent relative humidity is bent, through 180° around a 2 inch diameter mandrel.
- 10. Abrasion Resistance. The dried film shall have an abrasion index (Taber cycles divided by weight of film in mgs. per sq. cm.) of not less than 100 when tested on glass plates using a Taber Abraser (Model J or equivalent) with Taber CS-10 Calibrase wheels.
- 11. Tackiness and Slipperiness.
  The dried film shall be neither soft and sticky nor excessively slippery.
- 12. Water Resistance. The dried film on a specified surface, after 48 hours at 25° C. (77° F.) and 50 per cent relative humidity shall be resistant to coid water. The film shall not be permanently whitened or damaged by contact with water for one hour at 25° C. (77° F.). The film shall not be removed by damp mopping with a soft rag using clear water at 25° C. (77° F.).
- 13. Removal of Film. A film dried for 48 hours at 25° C. (77° F.) and 50 per cent relative humidity, on new linoleum, shall be easily removable by moderate scrubbing with a soft bristle brush, using an aqueous detergent solution, containing 0.25 per cent tallow soap chips and 0.25 per cent aqua ammonia (28 per cent NH³) at a temperature of 50° C. (122° F.).

### N.A.I.D.M. PROPOSED STANDARD METHODS FOR TESTING WATER-DISPERSION FLOOR WAX

### Purpose

The purpose of compiling a more or less complete set of methods for testing water-dispersion floor wax is to make available to the manufacturer, user or other interested persons suitable procedures which have proven to be best adapted for the purpose intended. It is the further purpose to limit the methods more or less to tests designed to evaluate performance properties rather than to determine composition data. There is a need for such standard methods because even on such a simple test as total solid content, there is a possibility of widely divergent results unless great attention is paid to small details. At present there are no methods accepted as standard by any association or group except as such methods may be part of a specification. Standard methods of testing will make

it possible to eliminate controversies which are now inevitable.

### Methods of Testing

- 1. Sediment. Mix the original sample well and pour a 100 cc. portion into a graduated A.S.T.M. water and sediment tube. Centrifuge for 15 minutes at approximately 2,000 r.p.m. Read directly volume of sediment in mls.
- 2. Stability. Measure viscosity of original sample at 25° C. (77° F.) using Oswald type pipet viscosimeter. Pour 100 ml. of the original sample into a 4 oz. bottle approximately 35 mm. inside diameter. Close the bottle securely with a clean cork and allow it to stand undisturbed in an upright position at 52° C. (125° F.) for 168 hours. At the end of this time, cool to room temperature, measure viscosity as before and observe for any creaming, separation or gelling.
- 3. Total Solids. Use a porcelain capsule crucible approximately 5 cm. in diameter and 1 cm. deep for the determination. Heat the capsule to dull red heat, cool in a desiccator, and weigh to the nearest tenth of a milligram. Place in the capsule a sample of from 2 to 3 grams accurately weighed to the nearest milligram, taking suitable precautions to avoid error due to loss of weight by evaporation during transfer and weighing of the sample. Heat the capsule containing the sample on a steam bath for 1 hour, then transfer it to a drying oven and heat for 3 hours at 105° to 110° C. (221° to 230° F.). Cool the capsule in a desiccator and weigh to the nearest tenth of a milligram. Multiply the weight of non-volatile matter by 100 and divide by the weight of the sample to obtain the percentage of non-volatile matter.
- 4. pH Value. Determine the pH of the sample at 25° C. (77° F.) using a glass electrode pH meter without application of correction for sodium or potassium ion concentration.
- 5. Surface Tension. The surface tension of the sample at 25° C. (77° F.) may be determined by one of the reliable, established methods for this determination. The ring detachment method is preferred for this test on water dispersion waxes. Instruments suitable for determination of the surface tension of water-dispersion floor waxes include the Cenco-du Nouy Tensiometers described in Bulletin 101 of the Central Scientific Company.
- 6. Levelling and Spreading. Test panels, 3 x 6 inches, of new brown linoleum of good quality and either 4 or 4 inch in thickness shall be used. Before applying the water-dispersion wax to these test panels, thoroughly re-

move any wax coating. Usually this can be done by soaking for five minutes at 50° C. (122° F.) in an aqueous solution containing 0.25 per cent by weight of 88-92 per cent tallow chip soap and 0.25 per cent by weight of 28 per cent aqua ammonia, scrubbing the top surface of the test panels gently with a soft bristle brush or cloth saturated with the above detergent solution at 40°-50° C. (104°-122° F.), rinsing the test panels thoroughly with water at 40°-50° C., draining and wiping the top surface dry with soft clean cloths.

Apply some of the sample to one of the cleaned linoleum test panels, using a small, clean mohair applicator just saturated with the sample, and applying it with light, uniform, overlapping parallel strokes. Note levelling and spreading properties from appearance of dried film.

Place coated linoleum specimen in desiccator or chamber in which humidity is controlled at 50 per cent relative humidity (see Note 1) at a temperature of 25° C. (77° F.) for 48 hours. Then apply a second coat of sample using same technic as above. Note any re-emulsification on applying second coat and levelling and spreading properties from appearance of dried film.

If flexibility of film is required, test can be carried out on same test panel.

- 7. Drying Time. Flow a uniform film of the sample over the surface of a clear glass plate which has been cleaned by immersion in chromic acid cleaning solution followed by thorough rinsing with clear water. Incline the test plate at an angle of 45° to the horizontal and allow it to drain and dry in this position in air maintained at a temperature of 25° C. (77° F.) and 50 per cent relative humidity. Observe time required for film to become dry to touch at a point 15 mm. above lower horizontal edge. Express drying time as period required to nearest minute. If transparency of film is required, observation can be made on this same test panel.
- 8. Gloss or Lustre. Use a gloss meter consisting of a light source, of constant intensity, directing a substantially parallel beam at the surface to be tested at an angle of incidence of 45°; a photocell, with a spectral-response curve approximating the ICI standard luminosity curve, placed to intercept the reflected beam at an angle of reflection of -45°; a sensitive galvanometer for measuring the e.m.f. generated by the photocell. A meter of this description is supplied by Pfaltz & Bauer, Inc., New York City. Calibrate the gloss meter by placing it on an optical flat, made of glass with an index of refraction of nD = 1.5172, 8 mm. thick, with a fine ground back resting on a non-reflecting black surface. Check the instrument before and after all readings on test panels.

Select a test panel of new brown linoleum from which all wax has been thoroughly removed and record the

gloss of the test panel. Flow a uniform film of the sample onto this test panel, drain and dry at an angle of 45° in air at a temperature of 25° C. (77° F.) and 50 per cent relative humidity for a period of 24 hours, then measure the gloss of the dried film on the test panel with the calibrated gloss meter. Subtract the gloss reading of the test panel from the gloss reading of the dried film on the test panel, multiply the difference by 100, and divide by gloss reading of the test panel to give the percentage increase in gloss.

As an alternative method particularly intended for control testing, it is proposed that a standard test solution consisting of ammonia-water-shellac or sugar in water be developed so that such solution when applied to a linoleum surface will produce a gloss equivalent to an increase of 100 per cent as determined by the gloss meter.

- 9. Transparency of Film. Clean a piece of clear plate glass using chromic acid cleaning solution and rinse thoroughly. Flow a uniform film of the sample onto one surface of this glass, and allow it to drain and dry at an angle of 45° in air at a temperature of 25° C. (77° F.) and 50 per cent relative humidity. Observe the dried film from the under side of the glass plate by transmitted bright daylight.
- 10. Flexibility of Film. Prepare linoleum test panel with 2 coats of sample exactly as described under Leveling and Spreading. Alternately the same test panel may be used for both tests. Determine the flexibility of the film at 25° C. (77° F.) and 50 per cent relative humidity by bending the test panel, with the treated surface on the outside, around a mandrel 2 inches in diameter, through an arc of 180°. Observe the film for any cracking or chipping.
- 11. Abrasion Resistance. Prepare three discs of 1/6" thick, clear plate glass, each 4" in diameter with a 1/4" diameter hole in the center. Clean the discs by the method specified for linoleum test panels. By means of two glass cylinders, one 2" in diameter and one 3%" in diameter, with lower ends ground exactly at right angles to their axes, and dipped into melted paraffin, apply two rings of paraffin to the upper apply two rings of paramn to the upper surface of each disc, concentric with the center hole, being careful to avoid contaminating the cleaned glass sur-face between the two rings. Determine the area of the glass surface between the two paraffin rings in sq. cm. by actual measurement with an accuracy of ± 2 per cent. Mark each glass disc for identification, and weigh each accurately in air at 25° C. (77° F.) and 50 per cent relative humidity. Coat the surface between the two paraffin rings on each disc with a thin uniform film of the original sample by applying be-tween 0.5 and 1.0 ml. of the original sample of water-dispersion wax from a 1 ml. pipette and spreading it uniformly over the entire surface between the paraffin rings with the tip of the pipette. Dry the coated discs in a horizontal position in air at 25° C. (77° F.) and 50 per cent relative hu-

midity for 24 hours, and weigh the discs again accurately under these conditions. Subtract the original weight and divide the difference in milligrams by the area of the wax film in sq. cm. to give the weight of coating in me, per sq. cm. Abrade the coating on each disc, at 25° C. (77° F.) and 50 per cent relative humidity, on a Taber Abraser. Model J, using Taber CS-10 Calibrase wheels, until the coating has been worn away from approximately 50 per cent of the area of the abrasion track. Clean the wheels by ten cycles on the carborundum paper cleaning discs after each 100 cycles on the wax surface. Subtract the total number of cleaning cycles from the total number of cleaning and abrading cycles. Divide the number of abrasion cycles required for each disc by the weight of the dried coating in mg. per sq. cm. on that disc to give the wear resistance index.

- Tackiness and Slipperiness.
   No satisfactory method has yet been developed.
- 13. Water Resistance. Prepare a test panel on cleaned new linoleum in the manner described under Levelling and Spreading. Place a large drop of distilled water, 1 to 2 cm. in diameter on the treated surface of the test panel. Allow to stand undisturbed for one hour in air at 25° C. (77° F.) and 50 per cent relative humidity. Shake off any remaining water. Observe whether the wax film is damaged or appreciably whitened by the water. Note whether any visible spotting of the film disappears on drying for ½ hour at 25° C. (77° F.) and 50 per cent relative humidity.
- 14. Resistance to Damp Mopping. Wet a clean soft cloth with clear water at 25° C. (77° F.). Wipe the entire treated surface of the test panel used in the Water Resistance test with this wet cloth, exerting moderate pressure and wiping five times at intervals of 2 seconds. Then wipe the test panel dry with a clean, soft, dry cloth. Observe whether the wax film is removed by this process.
- 15. Removability. Prepare a test panel on cleaned new linoleum in the same manner described under Leveling and Spreading. After aging panel for 48 hours, immerse it in detergent solution same as specified under Levelling and Spreading, for 5 minutes at a temperature of 50° C. (122° F.). Then, with a test panel still immersed, scrub its treated surface moderately with a soft bristle brush, making at least 10 strokes of the brush with moderate hand pressure across each portion of the treated surface. Remove the test panel from the detergent solution, rinse it thoroughly with clear water at 40°-50° C. (104°-122° F.), and wipe dry with a soft, clean cloth. Observe the panel for completeness of removal of wax film after drying.
- Note 1. A saturated solution of calcium nitrate (Ca(NO\*)\*4H\*O) at 25° C. (77° F.) gives 50 per cent relative humidity.

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**PYREFUME SUPER 20** . . . the perfected Pyrethrum Extract, guaranteed in Pyrethrins content. Chemically and physiologically tested for household and agricultural sprays. Proved effective against flies, mosquitoes, roaches, bedbugs, silverfish and other hardy pests.

PYRETHRUM EXTRACT . . . 20% Pyrethrins for Aerosol insecticides — probably unavailable for civilian use for the duration, but a recent important development.

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# Peet-Grady Method

Official Method of the National Assn. Insecticide & Disinfectant Mfrs. for Evaluating Liquid Household Insecticides.

HE Peet-Grady Method was adopted as an official test in 1932, and has has since been improved in minor details, all improvements having been officially accepted after satisfactory trials. Two methods, or procedures, are now permitted under the official test. The Small Group is substantially the same as outlined at the time the test was adopted in 1932. The Large Group, or later procedure, was officially adopted in 1938. Both methods are being used extensively, and if correctly performed evaluations by either test may be expected to be in reasonable agreement. The two methods are designed to evaluate liquid sprays in conjunction with the Official Test Insecticide as the basis for comparison.

### I. SCOPE

This method of test is a means of determining the relative efficiency of contact liquid insecticides used in the form of a spray. As a biological test, it is subject to variations which accompany the reaction of living organisms and should be employed under the supervision of a person familiar with the biological testing of insecticides. In order to measure with reasonable tolerances the relative position of different insecticides, the test is designed to be used in conjunction with the "Official Test Insecticide" as the basis of comparison. In the small group or original procedure the insecticides are tested against lots of 100-fly test units having natural sex ratios, prepared while the flies are in either the pupal or adult stage. Ten paired tests of known and unknown samples are required to compensate for biological variables. In the large group procedure the insecticides are tested against representative 500-fly test

units having uniform sex ratios, prepared while the flies are in the pupal stage, placing at least 500 pupae in each cage.

### II. APPARATUS

### A. Rearing Room

This room may be of any convenient size constructed so as to be free from strong drafts, and maintained at a temperature between 80 and 85 degrees Fahrenheit with a range in relative humidity between 40 and 70 per cent. It should be separate from the testing room in order to eliminate the possibility of traces of insecticide coming in contact with the test insects prior to the test.

### B. Testing Room

This room may be of any convenient size capable of holding the standard Peet-Grady Test Chamber and permitting adequate additional space for the operator to handle the test efficiently. While conducting tests this room shall be maintained at a temperature of 75 to 85 degrees Fahrenheit. It is not necessary to control the humidity, although it is suggested that it be held between 40 to 70 per cent relative humidity. Since the exhaust fan of the Chamber will remove relatively large quantities of air, the air inlet to this room should be constructed to permit air of approximately the specified temperature to enter the room.

### C. Peet-Grady Test Chamber

The Test Chamber shall be constructed of wood or metal, or other suitable material. The inner surface shall be smooth and impervious to the usual household type of insecticide. The Chamber must be rigidly constructed and the inside

must be free from cracks, projections, ledges, etc. The Chamber shall be a 6-ft. cube by internal measurements, with a tolerance of plus or minus 1 in. for any dimen-One wall shall contain a tight-fitting door large enough for a man to enter conveniently, with the interior side flush with the wall when closed. One or more of the walls, or the ceiling, shall contain an observation window. (It is suggested that at least two opposite walls have observation windows.) Illumination is provided by means of a glass window in the ceiling above which is placed an electric lamp in a reflector, or by any other satisfactory means such as fluorescent lights. A wire screen-covered air duct (10-mesh screening) shall be provided to permit the ventilation of the chamber after each test. The location of this exhaust duct in relation to ventilation openings in the walls must be such that thorough ventilation of the chamber is obtained. Preferably, this is accomplished by ports approximately 6 x 6 in. in size, covered with screen on the inside and provided with tightfitting hinged covers on the outside. Four ports located in the 4 lower corners, or 8 ports located in both the 4 upper and 4 lower corners are satisfactory. The ventilation ports should not be on the same level as the exhaust port. The entrance door may be used alone or in conjunction with the ventilation ports if a screen door is provided and thorough ventilation of the chamber is obtained. Satisfactory openings shall be provided for the introduction of the insecticide; these shall be so constructed and so located that uniform distribution of the spray is effected. These openings may be round 1 in. holes located not less than 6 in. or



# PYRETHRUM EXTRACT FOR POST-WAR USE

The Aerosol Bomb, used by the Army and Navy for mosquito control, owes its efficiency to pyrethrum.

The pyrethrum concentrate used in these bombs must be more highly purified than ordinary concentrates. The naturally occurring resins and waxes must be removed, otherwise they may precipitate and plug the fine discharge tubes used in the bombs, rendering them useless.

**PYROCIDE 160** is made by an entirely new process, especially for use in Aerosol Bombs. It is the most satisfactory pyrethrum concentrate made for this purpose.

After the war the same ingenuity and skill that went into the development of PYROCIDE 160 will be devoted to the manufacture of all of our pyrethrum concentrates:

**PYROCIDE 20**—The original standardized, concentrated, clarified pyrethrum extract, but now purer, and freer from color, odor and irritating impurities.

**PYROCIDE 40**—Twice as strong as PYROCIDE 20, and now better adapted than ever before to making livestock sprays and agricultural dusts and sprays.

PYROCIDE 160—The Aerosol Bomb extract which is truly called "The purest form of pyrethrins commercially available." Eight times as strong as PYROCIDE 20. PYROCIDE 160 is 99.25% to 99.5% soluble in "Freon." Army specifications permit extract which is only 96% soluble. To our knowledge no other man-

ufacturer has commercially produced so pure an extract as PYROCIDE 160. When you pack Aerosol Bombs for your customers after the war, the superior purity of PYROCIDE 160 will give you fewer packing problems and better bombs to sell.

DRY PYROCIDE—The original stabilized solid pyrethrum concentrate for making horticultural dusts. The new process makes it easier to mix with diluents, and the resulting dust flows more freely and will do an even better job.

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more than 18 in, from the ceiling and 1 in. from thhe nearest corner on each wall or a single hole may be provided in the center of the wall 6 to 18" from ceiling. Any spraying arrangement that may be used should not furnish hiding places for the insects nor allow undue ventilation. The nozzle of the atomizer shall be oscillated slowly in a horizontal plane to avoid spraying walls and ceilings and to effect uniform distribution of the spray.

### D. Fly Cages

Any satisfactory cages of any convenient type may be used. It is suggested that the base be square in shape to provide sufficient floor space, and that they provide at least 1 cubic inch of space per fly. The floor of the cage is preferably detachable, to facilitate cleaning the cages and inserting a paper floor covering. The cages are constructed of wood or other suitable material and 16 mesh wire screening, and are fitted with a sleeve opening or rubber membrane. At least 2 sides and the top shall be screened.

### E. Atomizer

The atomizer used shall be the special one constructed by the DeVilbiss Company for the N.A.I.-D.M. Standardization Committee and obtainable from that company, by referring to "special atomizer for Peet-Grady Insecticide Test - De-Vilbiss Special No. 5004." The sprayer shall be operated with air maintained at a constant pressure of 12.5 plus or minus 0.5 lb, per sq. in. and which must be free of oil, dust particles, or condensed moisture. The atomizer should deliver 12 cc of base oil in 24 seconds (tolerance ± 1 second) and this should be checked frequently.

### F. Apparatus for Picking Up Flies

Any convenient means of picking up the paralyzed flies without injuring or appreciably disturbing them may be used. A vacuum device providing gentle suction and a sufficiently large receptacle to prevent crowding of the flies has been found satisfacory. The pick-up device shall be cleaned after each test

with the same solvent used in cleaning the chamber. However, careful picking up by hand or other satisfactory methods are permissible.

### G. Exhaust Fan

An exhaust fan moving not less than 1,000 cu. ft. of air per min. is used to ventilate the chamber after each test. It shall be arranged with adequate piping to exhaust the chamber vapors outside of the building.

### H. Test Insect

For evaluation purposes, the house fly (Musca domestica, L.) is used. Healthy test groups having an average age of not less than 4 nor more than 6 days are to be used. Individual flies in the test groups shall not be less than 3 nor more than 7 days old at the time of the testing. Under the usual rearing conditions (temp. 80-85 F.) the flies are ready for use 15 days after the culture was prepared (5 days after peak emergence) or about the second day of oviposition. The strain shall be of such susceptibility that the O.T.I. will cause a mortality of from 30 to 55 per cent.

### I. Reference Insecticide

The primary reference insecticide used in this test for evaluating the unknown shall be the current Official Test Insecticide (O.T.I.) and shall be prepared by the National Association of Insecticide and Disinfectant Manufacturers, Inc., each year.

### J. Insecticide Paper

Any unsized, non-glazed absorbent paper such as brown kraft wrapping paper or gray bogus paper of proper width may be used on the chamber floor. The paper surface should be renewed for each test. Two overlapping sheets of 36-40 in. width or one sheet of 6 ft. width may be employed. No special weight is to be specified although 60-80 lbs. weight paper has been found excellent.

### III. PROCEDURE

### A. Raising and Handling of Flies

Culture jars are prepared by filling cylindrical battery jars or other satisfactory containers measuring approximately 6 in. in diameter by 9 in. high, three-quarters full of the synthetic medium prepared as follows:

For 1 jar:

400 g. soft wheat bran (coarse) 200 g. alfalfa meal.

Mix together thoroughly, place in jars, and then add 900 to 1,000 CC of an aqueous liquid suspension containing:

16 ml. malt extract

10 g. compressed yeast.

Mix the suspension throughout the bran-alfalfa to give a loose mixture. The proportion of liquid ingredients to dry ingredients may be varied slightly to prevent mold growth. Dry ingredients and suspension may be mixed before adding it to the battery jar.

Horse manure with added water, malt, and yeast may also be used as the rearing medium. The manure, which must be fresh, is preferably pasteurized for 2 hrs. at 160-165° F. After the manure is cooled, it is packed loosely into battery jars, leaving just enough room on top to fit the covers. To each jar is added 100 CCs of yeast cells suspended in water taken from the formula of 1 # yeast to 1,700 CCs water. The volume of suspension added may vary, dependent on the moisture content of the manure, but should be such as to maintain a slight excess of liquid in the bottom of the jars with a thin dry layer of medium on the top at the time of pupation. Other satisfactory breeding media may also be employed such as powdered milk. mixtures of alfalfa meal, bran and brewers' grains or oat hulls, etc.

Eggs are deposited in the food dishes or other containers suitable for oviposition, in cages containing 4 and 4-day-old flies. It is preferred that eggs be collected from at least two cultures. About 2,000 eggs or sufficient to give 1,500 to 1,800 flies per jar are transferred from the moist cotton to the jar after the medium has been mixed. The number of eggs to use may be determined by gently shaking the eggs in water for a minute, allowing them to settle

### SKINNER & SHERMAN, INC.

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Bacteriologists & Chemists

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> Analyses and Counsel relating to the application of chemistry and biology in industrial operations.

OFFICIAL CHEMISTS OF RUBBER MANUFACTURERS ASSOCIATION, INC. FOR TESTING OF RUBBER FLOOR POLISHES AND CLEANERS

# Official Test Insecticide (O.T.I.)

Supplies of the 1944 Official Test Insecticide for evaluating fly sprays by the Official Peet-Grady Method are available only from the office of this Association. The O.T.I. is priced at \$5.00 per

dozen six-ounce bottles, plus shipping costs, to members of this Association. To others, there is an additional service charge of \$1.00 per dozen. Single bottles \$1.00 each. Send check with order.

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out and then estimating volumetrically from a calibrated tube. One-tenth ml. of settled eggs contains about 500 eggs.

When the larvae have migrated to the top inch of media and pupated, usually on the eighth or ninth day after preparation, the pupae are separated from the medium by lifting off the top 1/2 in. of the medium in each jar, loosening the exposed pupae, and then pouring the pupae with adhering particles of medium on a cafeteria tray. The pupae-medium mixture is placed in a fan blast until it is of such dryness that the fan blast will effect a clean separation of the pupae and medium when the mixture is sprinkled over an inclined tray placed in the air stream. Other procedures such as the use of funnels may be employed for separating the pupae from the medium. The pupae must be handled gently to avoid injury.

The separated pupae are thoroughly mixed and weighed into groups as test units and each group is placed in a shallow dish which is, in turn, placed in a cage. If the large group procedure is used the test unit consists of approximately 500 pupae. If the small group procedure is used 1,200 to 1,500 pupae are placed in stock cages of 1,500 cu. in. or larger size. The series of test units is then kept for 5 days after peak emergence or until the second day of oviposition (usually the 15th day after the culture was prepared). Each cage is supplied with a dish containing a 50 per cent dilution of milk with water (or other satisfactory food), so prepared as to prevent the flies from drowning. A 40 per cent formalin solution at the rate of 1/1500 delays souring of milk for several hours. Satisfactory food must be available to the flies at all times.

### B. Test Procedure

On the second day of oviposition the series of cages from one culture are ready for testing. In the large group procedure all flies in one cage are transferred to the thoroughly cleaned Peet-Grady chamber, the floor of which is covered with a satis-

factory type of paper. In the small group method approximately 100 flies are used in each test. Samples may be taken by liberating 100 flies directly into the chamber and continuing until about 10 per cent of flies remain in the stock cage. These should be discarded. The order of spray treatments must be randomized as discussed in paragraph 4, # 5. Samples may be taken also by discarding the first 100 flies and then counting 50 flies into each of 9 small cages. 100 flies are counted into the 10th cage and then, starting with the 9th small cage and working backwards, 50 flies are added to each. Flies remaining in the stock cage are discarded. The cages for each test are picked at random and the number of flies should be within 5 of

All ports and entrances are closed, the windows are equally shaded, and a total of 12 ml. of insecticide is applied at 12.5 lb. pressure in approximately equal quantities through each spray hole, care being taken to assure that the insecticide is uniformly distributed throughout the chamber. The chamber is kept closed at a constant temperature in the range of 80-85° F. for 10 min. from the time the spraying is started. At the end of 10 min. the ports are opened and the chamber is ventilated while the flies are being picked up.

The paralyzed flies are picked up and transferred immediately to clean cages meeting the specifications of paragraph II D. These flies may be counted when they are picked up or later, depending upon which time is the most convenient.

During the subsequent 24-hr. recovery period, the cage is placed in the rearing room and supplied with a gauze-wrapped ball of cotton saturated with 10 per cent sugar solution or suitable food made available by other satisfactory means provided it is near the floor of the cage and flies cannot drown in it.

The few unparalyzed flies in the chamber at the end of the 10min. exposure period are counted and removed.

Before a new cage of flies is liberated for the next test, the chamber walls are cleaned or wiped with a clean cloth saturated with alcohol containing 10 per cent acetone, or with other satisfactory solvents. It is recommended that the chamber be periodically cleaned with soap and water, to make sure that all toxic residues are completely removed. Special precaution should be taken to clean the inside walls of the chamber with the proper solvent after a test with a new chemical compound so as to eliminate the possibility of a toxic residue.

### C. Assembling the Data

The number of unparalyzed flies must be counted and recorded at the end of the 10 min. exposure period. The dead flies are counted 24 hrs. (± 1 hr.) later, preferably by removing them from the recovery cage. Only flies that show no sign of life upon being touched may be counted as dead. If paralyzed flies were counted as they were collected, the sum of paralyzed and unparalyzed flies yields the total flies in the test. If paralyzed flies were not counted as collected, the recovered flies are killed by placing the cage in an oven at 170° F. for a few minutes, after which they are counted. The sum of recovered and dead flies yields the paralyzed flies and this sum added to the unparalyzed flies yields the total flies used in the test. The mortality is the per cent dead of total flies and the knockdown is the percent paralyzed of total flies.

## IV. CONDITIONS FOR OFFICIAL EVALUATION

- 1. The tests shall be conducted in accordance with the procedure previously described.
- 2. An unknown insecticide to be officially rated shall have a knockdown percentage not lower than that of the O.T.I. with a tolerance of minus 2.
- 3. Cages showing a natural mortality greater than 5 per cent on the day scheduled for testing shall not be used.
- 4. Evaluation of an unknown shall be based on the difference of

the average mortalities obtained with the O.T.I. and the unknown sample. The O.T.I. kill shall fall between 30 and 55 per cent. Denote the difference between kills by the appropriate grade according to letter: U. S. Dept. of Com. CS-72-38.

Grade AA—excellent + 16 or higher + 6 to + 15

Grade B—equal to O.T.I. - 5 to + 5

5. In the small group procedure no more than 2 unknowns may be tested, in conjunction with the O.T.I. in any one series. Ten tests are run on the O.T.I. and on each of the unknowns in parallel; that is, test each sample of the series the same number of times with flies of the same batch and test every member of the series the same number of times on any one day. The three samples of a series are to be randomized in order of testing until 30 tests have been run. When only one unknown and the O.T.I. comprise the series, the order should likewise be randomized. For example 1, 2; 2, 1; 2, 1; 1, 2; etc. until twenty tests have been completed. The standard error of the mean difference between the average O.T.I. kill and the average unknown kill must be less than 3. (See example under \*paragraph 4.) If it is 3 or greater, the differences between pairs were too variable and to make results valid additional paired tests must be run to bring the standard error of the mean difference down to 3 or lower. Calculate the mean difference between kill obtained with the unknown and that obtained with the O.T.I.

The following example illustrates the arrangement of tests and calculations described in the preceding paragraphs. When two unknowns

and the O.T.I. are tested in series, the first table should consist of differences between No. 1 and the O.T.I., the second table should show differences between unknown No. 2 and the O.T.I. The method of calculation is shown in the following table:

			Inknown			Devia- tion from	Devia-
Pair	Date	Batch	No. 1 % Kill	O.T.I. % Kill	Differ- ence	Differ- ence	tion Squared
1	12/8	12/3	58	49 50 47	+9	+2	4
2	12/8	12/3	62	50	+12	+5	25
3	12/8	12/3	62 50	47	+3	-4	16
4	12/9	12/4	52	46	+6	-1	1
5	12/9	12/4	60	46 52	+8	+1	1
6	12/9	12/4	65	50	+15	+8	64
7	12/10	12/5	54	48 57	+6	1	1
8	12/10	12/5	56	57	-1	8	64
8	12/10	12/5	51		+7	+0	0
10	12/10	12/5	54 56 51 57	44 52	+5	2	4
			56.5 M	49.5 M	7.OMD	0	180 sum o

Mean difference equals 7.0; Standard error of MD=

$$\sqrt{\frac{\text{Sum d}^2 = \frac{1}{9}}{\frac{n-1}{\sqrt{n}}}} \sqrt{\frac{180}{\frac{9}{3.16}}} = 1$$

1:42 is less than 3, thus indicating the test has been properly conducted.

The letter n (in formula above) denotes the number of paired tests. This number is always 10 except when it is necessary to run additional tests to bring the standard error of the mean difference down to 3 or less.

The unknown in the example above tests 7 points (units of difference between the percentage kill of O.T.I. and the percentage kill of the unknown) better than the O.T.I.; therefore, unknown No. 1 is an "A" grade insecticide.

6. In the large group procedure the evaluation is carried out as follows:

The evaluation is based on the difference in mortality of the O.T.I. and the unknown as determined by one comparison on each of three cultures. Each culture used in determining the evaluation must show an O.T.I. kill falling between 30 and 55 per cent. Replicated O.T.I. tests on one culture shall agree within 10 points.

The following example illustrates the order of testing and the computation of the evaluation:—

The order of testing shall be random, except the O.T.I. shall be replicated within each culture with the random order restricted to the first two and the last two tests in any series.

Culture Date	E 11/21		F 11/22		11/2	3
Cage No.	Sample	Dead	Sample	% Dead	Sample	Dead Dead
1	O.T.I	36	Unknown B.	55	O.T.I	40
2	Unknown A		O.T.I		Unknown F.	
3	Unknown C		Unknown C		Unknown E.	
4	Unknown B		Unkonwn F.		Unknown A.	
5	Unknown E		Unknown A		Unknown C.	
6	Unknown D		Unknown D.		Unknown D.	
7	Unknown F	48	Unknown E		O.T.I	
8	O.T.I		O.T.I		Unknown B.	

	Culture Mortalities	Average	Rating	Grade
O.T.I.	36; 45; 39	40		
Unknown A	42:46:46	44.7	+ 4.7	В
Unknown B	50; 55; 55	53.3	+13.3	A
Unknown C	32; 32; 30	31.3	8.7	Below B
Unknown D	55; 60; 58	57.7	+17.7	AA
Unknown E	65; 70; 58	64.3	+24.3	A.A.
Unknown F	48; 55; 54	52.3	+12.3	A

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#### SOAP MAKING PROCESSES

(From Page 170)

tions, ideal for the future "tailormade" products. The DuPont process has definite advantage over the long known acid interchange, or the expensive alkali-alcoholate conversion. The methyl esters drop most of the impurities to the glycerine layer, which, in turn, is easily refined and concentrated. The saponification, in the presence of liberated alcohol, is complete and rapid. The toxic, but low boiling methyl alcohol is easily removed from the soap to an amount below .1%, and the resulting soap, due to the low temperature treatment, is excellent in color and very stable. Even soaps which are manufactured in the semi-boiled fashion (without formation of nigre), are of very good quality, and suitable for toilet soap and flakes manufacture. This process may be advantageously adopted on a continuous, as well as on the batch basis. The steam and power requirements are relatively very low, and the process at present glycerine prices is economical, even if the methyl alcohol is not completely recovered.

DuPont's process has passed practical tests successfully, and it will certainly be found in the front row after the war.

#### Outlook

The review of industrial saponification of glycerides leads to an assumption that the old soap boiling process will be thoroughly revised and improved in the post-war era. The main efforts are aimed at a rapid, complete saponification, and a quicker and better recovery of glycerine. The path of progress will naturally depend on market conditions, and a low price on glycerine may have some delaying action on new investments. The saponification of glycerides has a potential competitor in the conversion of fatty acids to soap, especially on a continuous basis for the production of powders and detergents.

Almost every new process will require thorough engineering

supervision, and frequent laboratory control. Which of the new methods will predominate in the near future is hard to foretell. The methyl ester process opens new aspects on "tailormade" soap, and gives the smaller and middle size manufacturer a chance to streamline his production. The centrifuge may cut down the settling time of spent lyes from hours to minutes, and pressure saponification is liable to supersede the oldfashioned boiling, if synchronized with modern spraying equipment.

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#### **GLYCERINE OUTLOOK** (From Page 164)

declined to 87.7 million pounds on December 31, 1944.

The world demand for glycerine will probably be heavy for a period after the war, since production in Europe has been practically non-existent with the exception of that produced specifically for military purposes. As a result of this demand it is likely that U.S. and U. K. glycerine stocks will decline at least until European production is resumed. It is probable that the disparity between production and domestic consumption will not create any great difficulties during the two years following the end of the European War. However, at the end of this time European glycerine production will probably be back somewhere near normal and as indicated earlier in this paper, the production of soap in the United States with the concomitant production of glycerine may increase to substantially

higher levels than at present. The result may again be a world oversupply of glycerine.

There is a possibility that increased consumption by Russia may absorb some of the increased production, just as there is a possibility of some of the present domestic uses expanding; but it is doubtful that it would be safe to place much reliance on these possibilities. Furthermore, the production of glycerine substitutes has increased and these materials are being aggressively sold by their manufacturers. As indicated above they have made inroads into some of the fields held by glycerine and will probably continue to do so. Where the question of non-toxicity is important glycerine is in a safer position than where this characteristic is unimportant. But unfortunately some of the largest uses of glycerine do not require non-toxicity. Consequently serious consideration must be given to the development of new uses for glycerine, particularly in those fields where its individual properties are important.

### (FAT SALVAGE STATISTICS

(From Page 165)

Consumer surveys indicate that over 90 per cent of the nation's house-wives know that used fats are needed for war production and many essential civilian products. A recent survey indicated that 74 per cent of these women are participating in the

campaign, and had some amount of salvaged fat on hand at the time they were interviewed.

#### WFO-42b

(From Page 177)

- (v) Limitation on soap inventories.

  (1) Except as provided in paragraph (v)

  (4) hereof, no person shall accept delivery of soap for a specific use in his
  business operations in any amount which
  will cause his inventory of soap for such
  use to exceed the largest of the following
  quantities: (i) a 45-day supply based upon
  current rate of consumption; (ii) two
  cases of packaged soap; (iii) two bulk
  packages.
- (2) Except as provided in paragraph (v) (4) hereof, no person shall deliver or accept delivery of soap in quantities of one or more cases or bulk packages, unless the person accepting delivery executes and furnishes to his supplier a certificate in the following form:

The undersigned hereby certifies to the War Food Administration and to

(Name and address of supplier) that he is familiar with the terms of War Food Order No. 42b, that this certificate is turnished in order to enable the undersigned to acquire.....soap for a specific (Quantity)

use in his business operations, to be delivered on or about....., and that (Date of delivery)

the receipt by him of such soap will not cause his inventory of soap for such specific use to exceed (check applicable provision, whichever is largest)

- a 45-day supply based upon current rate of consumption.
- two cases of packaged soap.
- two bulk packages.

- (3) All certificates executed under (v) (2) hereof shall be retained by the supplier for examination by the Director upon request. All statements contained in such certificates shall be deemed representations to an agency of the United States. No person shall be entitled to rely upon any such certificate if he knows or has reasonable cause to believe it to be false.
- (4) The provisions of paragraphs (v) (1) and (v) (2) hereof shall not apply to soap delivered to:
- (i) An exempt agency, or to any Federal, State, county, or municipal agency;
- (ii) Any non-profit medical, educational, charitable, or religious organization;
- (iii) Any person for resale in the same form, or after the addition of color or perfume or solution in water."

The provision of this amendment reducing the permitted percentage of fats and oils used in package and bar soap shall become effective at 12:01 a. m. e. w. t., April 1, 1945. All other provisions of this amendment shall become effective at 12:01 a. m. e. w. t., March 22, 1945. With respect to violations, rights accrued, liabilities incurred, or appeals taken, prior to said dates, under War Food Order No. 42b, as amended, all provisions of said order shall be deemed to remain in full force for the purpose of sustaining any proper suit, action, or other proceeding with respect to any such violation, right, liability, or appeal.

Note: The record-keeping and reporting requirements of this order have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

(E.O. 9280, 7 F.R. 10179; E.O. 9322, 8 F.R. 3807; E.O. 9334, 8 F.R. 5423; E.O. 9392, 8 F.R. 14783)

Issued this 21st day of March 1945.

Ashley Sellers, Assistant War Food Administrator.

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Oil or Fat	Sp. Gr. (Water at 15°)	Sap. No.	Iodine Value	Titer °C.	% Non-Sap.
Castor Oil	0.958-0.968	177 -187	83— 86	3°-	0.3-0.5%
Coconut Oil	0.926	251—263	8-10	20°-23°	0.2
Corn Oil	0.921 - 0.927	186—193	120-130	15°-19°	1.5 -3.0%
ottonseed Oil	0.915 - 0.926	191—196	103—115	32°—38°	0.7-1.6%
inseed Oil	0.931 - 0.938	189—196	170-204	19°-21°	0.5-1.6%
live Oil Foots	0.914 - 0.919	189—195	98 —62	17°-21°	2.0-3.0%
alm Oil	0.921 - 0.925	196—205	48— 58	42°-45°	0.7-1.0%
Palm Kernel Oil	0.873/99°	244—255	16 - 23	20°—25°	0.2-0.5%
eanut Oil	0.911 - 0.926	185—192	83—95	28°-30°	0.5-1.0%
esame Oil	0.920-0.926	188—193	103—115	21°-24°	1.0-1.8%
Soya Bean Oil.	0.922—0.925	191—194	125-140	21°-24°	0.3-0.6%
Tallow (beef)	0.943—0.952	193—200	35- 47	43°-45°	
Whale Oil	0.922-0.926	188-194	110-150	22°-24°	1.0-3.0%

			FATEY	ACIDS	Z Z	OAP	OILS					
Glycerides of Acids	Coconut	Corn	Cottonseed	Linseed Olive	Olive	Palm	Palm Palm Kernel	Peanut	Sesame	Soyabean	Tallow	Whale
Arachidic	1	0.4	9.0	1	0.2	1	Aprenda	3.6	4.0	0.7	-	1
Lignoceric	1	0.2	1	1	1	0.1	1	2.9	0.4	0.1	1	1
Linolenic	1	1	1	34.1	1	1	1	1	1	2.2	1	1
Linoleic	1	39.1	42.0	48.5	3.9	9.5	1.0	23.1	35.2	49.3	.1	20.0
Myristic	20.0	1	0.4	1	Trace	9.0	16.0	1	1	1	2.0	8.0
Oleic	2.0	43,4	35.0	5.0	83.1	43.2	16.5	26.7	0.94	32.0	44.5	25.0
Palmitic	7.0	7.3	20.0	2.7	9.2	44.0	6.5	7.3	7.3	6.5	29.0	12.0
Palmitoleic	1	1	1	1	1	1	1	.1	1	1	1	17.0
Stearic	2.0	3,3	2.0	5.4	2.0	5.9	1.0	5.5	4.4	4.2	24.5	1

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ouchin Machinery Co		T. F. Washburn Co	70
ysan Prod. Co		Welch, Holme & Clark Co	46
	28		144
nnis, Speiden & Co	80	Woburn Chemical Corp	67
		Whittaker, Clark & Daniels	112
ay-Fries Chemicals, Inc	20	Wurster & Sanger, Inc	78



